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# FINAL

# SECOND ANNUAL REPORT OF THE TEFRA HMO AND CMP PROGRAM EVALUATION

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# EXECUTIVE SUMMARY

The Medicare risk program, authorized under the Tax Equity Fiscal Responsibility Act of 1982, has changed and evolved in a number of ways since its inception in April 1985. Recent changes in legislation and HCFA policies have affected the program, and the characteristics of participating HMOs and CMPs have changed as earlier entrants drop out of the program and new plans join. New findings from the evaluation, of which this Second Annual Report is a part, provide additional information about the growth of the risk program and the extent of biased selection encountered by the participating plans. This report documents the changes in legislation, program characteristics, and program size, and reviews the recent findings from the evaluation.

## Some Mandated Benefits and PRO Procedures were Changed

Under the Medicare risk program, health maintenance organizations (HMOs) and competitive medical plans (CMPs) are allowed to provide Medicare-covered services to beneficiaries in return for a fixed monthly payment. The payment is determined by the beneficiary's age, sex, county of residence, reason for entitlement to Medicare benefits, place of residence (nursing home or other), and whether he/she is on welfare. HMOs participating in the risk program must provide all Medicare-covered services required by enrolled beneficiaries in return for this monthly payment, and beneficiaries who are enrolled will no longer be reimbursed by Medicare for services delivered to them by other providers.

Four noteworthy changes in the Medicare risk program occurred in 1989-1990. First, Medicare plans were required to provide the expanded benefits mandated by the Medicare Catastrophic Coverage Act of 1988. Although this act was repealed in the fall of 1989, rates had already been developed for 1990 under the assumption that such services would be covered. Thus, for 1990 only, plans were required to provide unlimited hospital days, extend skilled nursing facility (SNF) coverage to 150 days with no prior hospital stay required, eliminate "spell of illness" provisions and hospital coinsurance, reduce SNF coinsurance, provide unlimited mental health benefits, and cover pap smear tests.

Another recent change, which caused considerably more consternation among participating plans, was a reinterpretation of Medicare's skilled nursing facility (SNF) benefit. The reinterpretation was that SNF care was covered: (1) even if the patient had a poor prognosis for recovery (i.e., the care need not be rehabilitative), (2) even if skilled services are needed only for the *supervision* of unskilled services, and (3) if the need for skilled care is *likely to develop* but does not exist at the time that a patient is admitted to the SNF for observation. HMOs believe that this reinterpretation substantially increases the number of cases for which they must cover SNF care.

A third major change that has just been implemented is a revision of the way that cases will be selected for review by the Peer Review Organizations responsible for assessing the quality of care provided by the HMOs. Under the new method, cases will be selected at random from the enrollees in the HMO, rather than from the "no pay" bills submitted on an erratic basis by hospitals.

Finally, another important development that did *not* result in a change in the risk program was the proposal put forth by the Bush administration to increase the payment rate to HMOs to 100 percent of the adjusted average per capita cost (AAPCC), the actuarial estimate of the

reimbursement that Medicare would expect to pay for an enrolled beneficiary had he remained in the fee-for-service sector. The proposal was withdrawn, due to the budget situation. Thus, payment remains at 95 percent of the AAPCC.

### Enrollment Increased Slightly, But the Number of HMOs Declined Again

As of January 1990, there were 96 plans with risk contracts, 28 percent fewer than the previous year. Total enrollment in the program, however, rose by 5 percent, to 1.1 million. Thus, although the number of plans has decreased, the number of beneficiaries served has grown slightly. This pattern is similar to that of the two previous years.

| | As of January: | | |
|---|---|---|---|
| | 1990 | 1989 | 1988 |
| Total Number of Risk Contracts | 96 | 133 | 132 |
| Number of Plans with Enrollments | 94 | 101 | 122 |
| Total Enrollment | 1,091,635 | 1,039,901 | 981,145 |
| Average Enrollment | 11,613 | 10,296 | 8,042 |

Average enrollment in the 94 plans with some enrollees was 11,613, 13 percent more that the previous year. This increase in average plan size is due to an increase in the proportion of plans with over 20,000 enrollees. About 60 percent of enrollees belong to the 11 percent of plans with over 20,000 members.

The great majority of the active plans in January of 1990 entered the risk program before 1988. Only 5 of the 94 active plans in 1990 joined the program in 1989 or 1990, and only 12 entered in 1988. Furthermore, these later entrants were nearly all small--only 2 of the 17 plans had more than 5,000 enrollees as of January 1990.

Although they comprise only 15 percent of the active risk plans, staff model HMOs tend to be much larger than IPAs or group model plans. The median staff model HMO had nearly 8,000 enrollees, compared to a median of about 4,800 for IPAs (which comprise over half of the Medicare risk plans). The 29 group model HMOs, which make up the other one-third of the plans, are much smaller than staff or IPA model plans, with a median of only about 2,100 enrollees.

Enrollment size varies substantially with a number of other plan characteristics, being larger for plans in favorable financial circumstances and plans offering the most generous health plan. Thus, median enrollment is 10,000 for plans in areas with high AAPCC rates, nearly twice as large as the median for plans in areas with moderate AAPCCs. Median plan size for HMOs in low AAPCC areas is even smaller, about 40 percent of the median for plans in high AAPCC areas. Plans that were estimated to have the most favorable selection also tended to be much larger than those with less favorable selection, not surprisingly. Plans offering prescription drug coverage are typically twice as large as those that do not offer this benefit. In the same vein, plans that charge the lowest premiums are much larger--the median enrollment for HMOs that charge $20 per month or less is twice the median enrollment for plans that charge higher premiums.

Although average enrollment for the 87 plans that were active in both January 1989 and January 1990 increased by 13 percent, over one-fourth of the plans lost enrollment over this period. Conversely, about one-fifth of the plans grew by more than 20 percent. Enrollment tended to grow fastest for IPAs or group model plans, for-profit plans, those that charged no premium or less than $20, and those located in areas with a high AAPCC rate. Large plans rarely lost enrollees, but the oldest plans lost membership more often than the more recent entrants. The latter finding suggests that older plans follow one of two very different patterns--the large old plans continue to grow, while the small old plans are decreasing in size. Other characteristics associated with larger size were not associated with more rapid rates of growth. For example, plans with the most favorable selection and those offering coverage for drugs grew no faster than HMOs without these features.

### Eleven Percent of Risk Plan Members Disenrolled; Rates are Higher for Some Types of Plans

Enrollment levels are affected by HMOs' ability to retain their members as well as their success in attracting new enrollees. To examine the flow of enrollees out of HMOs we computed the proportion of those who were HMO members at any time during the calendar year who had disenrolled from the plan by the end of that year. The median of this disenrollment ratio, which ranged from 5 to 41 percent across the 94 active risk plans, was 10.9 percent. The rate was 50 percent higher for the plans with the lowest premium (under $20 per month). The disenrollment ratio was also modestly higher for plans that were for-profit, those with prior experience as a demonstration plan, and for IPAs. Surprisingly, the median disenrollment ratio increased only slightly with the number of plans in the area.

Since a number of the characteristics associated with the most rapid growth were also associated with the highest disenrollment, we constructed a measure of the flow of members that reflects both of these dimensions. This replacement ratio indicated that for every 10 enrollees lost (to death or voluntary disenrollment), 13 new enrollees were gained by the risk program. Thus, the HMOs as a group took in 30 percent more new members than they lost. Replacement ratios were largest for the plans that charged no premium (replacement = 1.9), and for those that decreased their premium or held it constant between 1988 and 1989.

### Certain Types of Plans Grew in Importance

Over the past three years the distribution of characteristics of the plans in the Medicare risk program has changed substantially on several dimensions, including model type, for-profit status, chain affiliation, and experience. IPAs continue to constitute about half of the plans in the risk program, but contain a much smaller share of total enrollment (about 37 percent, compared to over 50 percent in 1988). Staff model plans have tripled their share of enrollment over this same period. For-profit plans have grown from 40 to 50 percent of the plans and now contain nearly 60 percent of the enrollees, compared to the 40 percent they previously held. Chain-affiliated plans have also grown in importance, such that 3 of every 4 plans are chain-affiliated, and 80 percent of all enrollees belong to such plans. This is an impressive increase since 1988, when only half of all enrollees belonged to chain-affiliated plans

The type of prior experience that an HMO had with Medicare members also appears to be different for the plans in 1990 than those in existence in 1988. Plans that participated in one of the pre-TEFRA demonstrations have a smaller share of total enrollment in 1990 than in 1988 (36 versus

46 percent), whereas plans with experience as an HCPP prior to signing a risk contract doubled their share of total risk enrollment over this period and now comprise one-fourth of all enrollees.

Nearly two-thirds of all enrollees are members of plans that entered the risk program in the first year (1985). This fraction has held constant since 1988; however, the plans with the next longest tenure in the risk program, those that entered in 1986, have a smaller share of total enrollment now than they did in 1988.

The distribution of plans by area characteristics, principally AAPCC rates and number of risk plans in the area, also changed markedly in 1990. The proportion of plans operating in areas with no other Medicare risk plans competing for enrollees increased by nearly half (to 40 percent), due largely to the nonrenewal of the other plans in their market area (only 3 new plans entered in 1990). Nonrenewal of plans was also partially responsible for the 12 percent increase in the median AAPCC rate (to $325 per month) that plans faced in 1990, since the nonrenewal rate was much higher for plans in areas with low AAPCCs than for those in areas with higher payment rates.

### Premiums Increased by Five Percent, Benefit Changes were Mixed

Premiums and benefits have both changed only moderately over the past few years. The median premium grew by only $2 per month in 1990, to $39. One quarter of all plans charge over $50 per month, another quarter charge $20 or less (and two-thirds of these charge no premium). The number of plans that do not charge the beneficiary a premium actually increased between 1989 and 1990.

The proportion of HMOs offering various benefits increased for some types of services and decreased for others. For example, the proportion covering ear care and the proportion covering eye care both doubled between 1989 and 1990 (to about 85 percent), and all HMOs covered outpatient mental health (as mandated by the Medicare Catastrophic Coverage Act). However, the proportion covering preventive care dropped from 81 percent to 71 percent, continuing the decline from 1988, when virtually all HMOs covered preventive care. The proportion of plans covering prescription drugs remained unchanged at about one-third, as did the proportion (10 percent) offering a high option alternative to their basic plan.

### Few Beneficiaries Affected by Nonrenewal of Risk Contracts; Financial Losses Cited by Plans

While the proportion of plans that declined to renew continued to increase and was quite large (30 percent), the proportion of *active* plans that left the program (13 percent) and the number of enrollees affected were much smaller than in the last two years. Of the 39 terminating plans only 14 had enrollees, and many of those that did have members converted to cost or HCPP contracts. Nearly all of the inactive plans that did not renew were members of the PruCare chain, which withdrew from the risk program.

| | 1990 | 1989 | 1988 |
|---|---|---|---|
| Percent of All Plans That Did Not Renew | 30 | 25 | 21 |
| Percent of Active Plans That Did Not Renew | 13 | 25 | 21 |
| Percent of Enrollees in Nonrenewing Plans | 7 | 11 | 8 |
| Percent of Enrollees in Plans No Longer Covering Medicare Members | 1 | 8 | 7 |

Only 7 percent of the enrollees in January 1989 were members of plans that declined to participate in the risk program for 1990, and only 1.3 percent were in plans that ceased providing coverage of any sort for Medicare beneficiaries.

The plans most likely to discontinue their participation in the risk program were small HMOs, IPAs, chain-affiliated plans, plans with no prior experience with Medicare members, and plans charging relatively high premiums. In our interviews with 34 plans that declined to renew for 1989 or 1990, nearly all blamed financial losses as their reason for nonrenewal. Many cited structural problems with the AAPCC, such as inexplicable differences between adjacent counties and erratic changes from year to year, as well as rates being too low. Other HCFA procedures cited as reasons for nonrenewal included the process for assessing quality of care through peer review organizations (PROs) and mid-year changes in rates or rulings. About half of the nonrenewing plans said that adverse selection was partially responsible for their nonrenewal, and half indicated that they had been unable to charge the premium they felt was necessary to cover costs, due to ACR calculations or to market competition.

Most nonrenewing plans were still optimistic about Medicare risk contracting, however, and offered a number of suggestions on how to improve the attractiveness of the program to HMOs. Suggestions included changing the AAPCC methodology in various ways, such as using diagnostic cost groups, using experience rating, accounting for market penetration rate differences, and using different geographic areas than counties when constructing AAPCC rates. Other suggestions included eliminating or changing PRO reviews substantially and eliminating mid-year and retrospective changes in coverage requirements or payment levels. Plans also suggested that new participants be offered more guidance by HCFA.

## Estimating Agencies' Profits Under Medicare Risk Contracting is Difficult

Given the number of agencies complaining about their financial experience in the Medicare risk program, we attempted to estimate the costs and revenues attributable solely to the Medicare risk plan of participating HMOs. HMOs and CMPs in the risk program are required to complete each year the National Data Reporting Requirement (NDRR) forms, detailing their costs and revenues. However, these reports do not require the plans to separate the costs of serving Medicare risk enrollees from the cost of serving their commercial clients. Thus, an econometric model was developed to disaggregate these costs, based on total member months of the two member types and on their respective hospital utilization rates. The models were estimated on 61 risk plans for fiscal year 1988.

Overall, the result made sense, but a number of the findings were counterintuitive. Costs per member month were predicted to be 3 to 4.5 greater for Medicare members than for commercial members. About half of the plans were predicted to make money on Medicare risk contracting. For-profit plans and plans in areas with high AAPCC rates were the most likely to make profits. These findings were consistent with expectations.

On the other hand, we found the strange results that plans with fewer than 3,000 members were the most likely to make money on Medicare, as were plans with *over* 1,600 hospital days per thousand Medicare members. Early HMOs were also estimated to be less likely to earn profits than the more recent entrants, contrary to expectations. Results for some plans also conflicted with evidence from other sources about the plan's financial experience under risk contracting.

The anomalous findings and poor quality of the data suggest that further development of the estimation method and data base are needed before valid conclusions can be drawn about the financial performance of Medicare risk HMOs.

### Most Medicare Risk Plans Experienced Favorable Selection

The Annual Report also reviews the key finding from the evaluation over the past year--that two-thirds of the HMOs in the risk program experienced favorable selection and none had adverse selection. For the set of 98 risk plans examined, reimbursements for enrollees during a two year period preceding enrollment were 23 percent lower than reimbursements over a comparable period for nonenrollees residing in the same area, after adjusting for differences between the two groups on characteristics controlled for by the AAPCC. These findings were supported by a comparison of the two groups on the proportion of beneficiaries with pre-enrollment hospital stays for conditions likely to result in high future costs. Again, the proportion of such high cost cases was 25 percent lower among enrollees than among nonenrollees overall, the differences were statistically significant for about two-thirds of the 98 plans, and no plan had adverse selection on this measure (that is, no plan had a significantly higher rate of likely high cost cases than existed among beneficiaries in the plan's market area). These findings of favorable selection are strikingly similar to those obtained on earlier demonstration plans by Brown (1980). They are also very consistent with results obtained more recently on risk plans under TEFRA by Riley, Lubitz, and Rabey (1990), who examined adjusted differences between enrollees and nonenrollees in mortality rates.

In general, staff model HMOs had more favorable selection than group model plans, which in turn had more favorable selection than IPAs. These results were consistent with prior expectations since most IPAs and some group model plans drew many of their enrollees from the patients they were already treating under fee-for-service reimbursement. Selection was no less favorable for plans in areas with the highest market penetration rates, however, which was contrary to expectations. Further examination suggested that older, well established plans continued to enjoy favorable selection even as the proportion of Medicare beneficiaries that were enrolled in the area grew. However, newer plans encountered substantially less favorable selection the higher the penetration rate of Medicare risk plans in the area.

Finally, as might be expected, the plans that did not renew their contracts had experienced substantially less favorable selection than those that did renew. A higher ratio of enrollee to nonenrollee reimbursements in the preenrollment period had a large positive effect on the likelihood that a plan would not renew its risk contract for 1989. Nonetheless, even the nonrenewing plans tended to have somewhat favorable selection.

The apparent anomaly of widespread favorable selection coinciding with increasing rates of contract nonrenewal and little new interest in the risk program led us to examine possible explanations. These two situations can coincide because:

- The low copayments and lack of deductibles may encourage enrollees to seek care more frequently than they had under the fee-for-service system

- Medicare risk plans experience administrative costs not incurred by the fee-for-service providers--for example, the PRO review process, ACR preparation, and enrollment and disenrollment procedures can take significant amounts of time, as can dealing with changes in coverage rules and payment levels

- Proscriptions on mid-year premium increases limit the HMOs' ability to respond to the changes in HCFA policies and premiums which sometimes occur

- Contracting to provide care for the elderly is riskier than contracting for commercial clients, because of the greater likelihood of catastrophic illness and the smaller risk pool. Yet the HMOs are not allowed to charge higher premiums to compensate for this greater risk

- The AAPCC is based on all beneficiaries in fee-for-service, 30 percent of whom do not have Medicare supplemental policies. These uninsured beneficiaries tend to have lower than average reimbursements, because they must pay the deductibles and copayments. Yet all enrollees will have the equivalent of Medicare supplemental coverage when they join the HMO. Thus, the HMO will be under-compensated for the services that enrollees are likely to use once these barriers to access are removed.

# I. INTRODUCTION

This report, the second of the annual reports from the evaluation of the Medicare risk program, examines the status of the risk program and describes the progress of the evaluation. Following this chapter on background, we first describe program characteristics in 1990 and how they have changed over the past three years. Next, we investigate the reasons why a slowdown in growth is occurring with a case study of nonrenewing plans and preliminary results from a financial analysis. We conclude by reporting on other evaluation progress and our plans for the remainder of the evaluation.

## A. A BRIEF HISTORY OF THE MEDICARE RISK PROGRAM AND EVALUATION

The TEFRA HMO and CMP Risk Program is part of the federal government's approach to fostering the growth of managed health care in the Medicare program. The Health Care Financing Administration (HCFA) designed the Medicare risk program to increase Medicare beneficiaries' choices for health care while reversing the incentives that exist in the Medicare program to increase utilization and reimbursements. In April 1985 regulations under the Tax Equity and Fiscal Responsibility Act (TEFRA) went into effect, authorizing Health Maintenance Organizations (HMOs) and Competitive Medical Plans (CMPs) to enroll Medicare beneficiaries under contract with HCFA for a prospective, fixed monthly payment. This payment is set at 95 percent of the Adjusted Average Per Capita Cost (AAPCC), an actuarial estimate of the amount HCFA expects to spend for Medicare reimbursements for a beneficiary living in the enrollee's county of residence. Payments are adjusted to account for differences between enrollees and area nonenrollees on factors that affect reimbursements, including sex, age, Medicaid eligibility, institutional residence and reason for entitlement (disability or age). In return, the HMO is responsible for providing all health care services that are normally covered under Medicare. Participating plans are allowed to offer services beyond those covered by Medicare, for which the beneficiary may be charged a premium.

To evaluate the TEFRA HMO/CMP program and its effects on service utilization, costs to Medicare, the quality of health care provided and other key issues, HCFA awarded a contract to Mathematica Policy Research (MPR) and the Medical College of Virginia (MCV) in March 1988.

### 1. HMO Participation in Medicare Prior to the Medicare Risk Program

The earliest precursors of the Medicare risk program were Group Practice Prepayment Plans (GPPPs), which were authorized under the original 1966 Medicare legislation. GPPPs, which are now called Health Care Prepayment Plans (HCPPs), are organizations that contract with HCFA to provide some or all Part B services (medical and other professional services) to Medicare beneficiaries. Payments to plans with this type of contract, while prospective, were based on the projected costs of the plans and adjusted at the end of the year to equal 80 percent of reasonable charges.

The Social Security Amendments of 1972 expanded the contracting options that HMOs had with HCFA. With these amendments, HMOs could enter into either cost or risk-based contracts with HCFA for the provision of both Part A services (hospital, nursing home, and other institutional care) and Part B services (principally physician and home health care). Under both programs reimbursement was provided through interim monthly capitation payments based on HCFA's estimate of the costs expected to be incurred by an HMO for providing services to its Medicare enrollees. For HMOs in the risk arrangement, actual costs were compared with a retrospectively determined adjusted average per capita cost (AAPCC), an actuarial estimate of the costs HCFA would expect to have paid for enrollees if they had been in the fee-for-service system. Under the risk arrangement, HMOs could share in any savings, up to 10 percent of the AAPCC, but were required to absorb all losses.

By 1980, fourteen years after the inception of the Medicare HMO program, the number of HMOs contracting with HCFA was still below expectations. Two factors contributed to HCFA's relative lack of success in attracting HMOs to participate in the risk program during this time. First, HCFA's contractual options offered insufficient financial incentives to plans. Second, the

retrospective cost-based reimbursement used by HCFA differed substantially from HMOs' usual procedure of relying on prospectively determined rates. The retrospective cost-based reimbursement introduced an additional element of uncertainty concerning the revenues that plans would ultimately receive and required additional administrative resources from the plans.

In an effort to gain HMO participation in the Medicare program, HCFA developed a series of demonstration projects to test alternative forms of HMO risk contracting. The first of these demonstrations, the Medicare Capitation Demonstrations, tested various reimbursement models among eight HMOs that began operation between 1980 and 1981. Reimbursements to individual plans ranged from 85 to 95 percent of the AAPCC and varied according to a number of risk-sharing arrangements.

Encouraged by the responses of both HMOs and beneficiaries to the initial demonstrations, HCFA authorized participation of 26 plans in a second demonstration, the Medicare Competition Demonstration. Participating plans in this demonstration agreed to accept full responsibility and financial risk for providing Medicare benefits to enrollees. For each enrollee, HMOs received a prospective monthly payment from HCFA equal to 95 percent of the AAPCC. At a minimum, participating HMOs were required to provide the current Medicare benefit package at no cost to the enrollee, but a premium could be charged for the Medicare deductible and copayment and for additional services that the HMO included in its benefit package. HMOs in this demonstration retained any savings generated. A few plans began enrolling beneficiaries in fall 1982 under the demonstration; others started up at various times during 1983 and 1984. The demonstration ended in April 1985 when the Medicare risk program went into effect.

A study of the Medicare Competition Demonstration (summarized in Langwell and Hadley, 1989) produced a number of interesting findings:

- Most (13) of the 17 HMOs studied, especially group and staff model plans, experienced substantial favorable selection of Medicare beneficiaries, as measured by enrollee-nonenrollee differences in preenrollment reimbursements. Three plans had neutral selection; only one had adverse selection.

- Those who joined a Medicare risk HMO were less impaired and younger than those who did not join, rated their health more highly, and were less in need of physician care at the time they enrolled than were nonenrollees. However, they tended to have had less access to care before joining than nonenrollees.
- Disenrollment rates in 1986 varied widely across plans, ranging from 2.6 percent to 61.9 percent. Overall, 30 percent of enrollees disenrolled within two years after joining. Nearly one quarter of the disenrollees were beneficiaries who joined another HMO.
- HMOs reduced hospital utilization at a small, consistent rate.
- The quality of care provided by the HMOs was at least as good as that provided by the fee-for-service sector for the conditions examined.
- HMO enrollees and beneficiaries in the fee for service sector were equally satisfied with the care they received overall. However, HMO enrollees tended to be less satisfied than nonenrollees with the professional competence of their physicians and quality of care provided, and more satisfied with access to care and paperwork requirements.

The current Medicare risk program enabled all federally qualified HMOs and Competitive Medical Plans (CMPs) to participate in risk contracting for Medicare beneficiaries, if the plan satisfied HCFA requirements. The program rules are very similar to the demonstration, but differ in that participating risk plans are allowed to earn no more on their Medicare plan than on their commercial business. This rule is enforced by requiring plans to compute an "adjusted community rate" (ACR) prior to contract renewal each year. Plans with expected revenues exceeding this ACR are required to add additional benefits, lower premiums charged to beneficiaries, or return the surplus to HCFA. Thus, risk plans are not allowed to earn excess profits on their Medicare business.

### 2. Goals of the TEFRA HMO/CMP Program Evaluation

HCFA's interest in expanding the managed care options available to beneficiaries led to the current investigation (of which this report is a part) of the effects of the Medicare risk program on beneficiaries, the government, participating plans, and the Medicare health care market. The key questions of interest for the evaluation include:

- Do enrollees differ from nonenrollees in their need and demand for health care services, even after taking into account the actuarial risk factors?

- Do HMOs reduce the utilization of Medicare-covered services? Does the Medicare risk program lead to higher or lower costs to Medicare than would have been the case had the enrollee not joined the HMO?

- Do HMOs make money under the Medicare risk program? Are some HMOs more successful than others and why?

- What fraction of enrollees disenroll and why? Is disenrollment more common among some types of beneficiaries than others? Is the rate higher for enrollees who used HMO services more extensively?

- What effects do HMOs have on each other, on the fee-for-service sector, and on Medicare supplemental insurers?

- How does enrollee satisfaction with care compare to nonenrollee satisfaction with care?

- How does the care rendered by HMOs compare to the care provided in the fee-for-service sector?

- Why do beneficiaries join HMOs? What types of beneficiaries are most likely to join?

For various reasons, the findings of the evaluation of the Medicare Competition Demonstration, which addressed several of these questions, are not necessarily transferrable to the Medicare risk program. The small number of plans in the demonstration and the poor quality of the data maintained by HMOs on financial performance and enrollees' use of ambulatory services precluded several analyses. In addition, the effects of a demonstration program may differ from the effects of an ongoing, permanent program.

### 3. Evaluation Findings to Date

Several analyses for the TEFRA evaluation have already addressed some of the key questions regarding the performance of the Medicare risk program (more detailed summaries of the reports are presented in Chapter VI of this report):

- A 1989 report by Langwell, et al., "Disenrollment Experience in the TEFRA HMO/CMP Program, 1985 to 1988" found that 7 percent of enrollees disenrolled within three months after enrolling, 12 percent disenrolled within 6 months, 20 percent had disenrolled within one year, and 33 percent had disenrolled within two years of enrolling. Disenrollment rates were higher for black beneficiaries, older beneficiaries, those entitled due to disability, and those who were Medicaid eligible.

- A major finding from a 1989 report by Nelson, et al., "Organizational and Operational Characteristics of TEFRA HMOs and CMPs," was that capitation of physicians appears to be the most critical factor in controlling utilization, but capitation combined with strong interaction between the HMO and providers produces the greatest control over utilization.

- The 1990 "First Annual Report: The Evaluation of the TEFRA HMO/CMP Program," by Bergeron, Brown and Hill, found that larger Medicare risk plans tended to be older, face more competitors, charge lower premiums, offer more benefits and receive higher AAPCC payments than smaller plans. Medicare risk plans generally increased premiums to beneficiaries over time, but there persisted some plans that charged nothing their basic benefit package, despite the generosity of these packages. IPA models, plans without prior Medicare contracting experience and plans charging high premiums were more likely to discontinue Medicare risk contracting than other plans.

- A 1990 report by Hill and Brown, "Biased Selection in the TEFRA HMO/CMP Program," found strong evidence that plans in the program enrolled beneficiaries who were healthier and less costly on average than those who remained in the fee-for-service system. Staff model plans, in particular, enrolled the healthiest beneficiaries of all model types. Plans that did not renew their risk contracts for the following year experienced less favorable selection than continuing plans.

The remaining issues will be addressed in reports to be prepared over the final 18 months of the evaluation, which concludes in February 1992.

## B. CURRENT ISSUES AND RECENT DEVELOPMENTS

During the past five years, a number of events or changes have occurred in the Medicare risk program, many related to plan financial performance:

- In each of the last three years a large number of plans did not renew their Medicare risk contracts.

- The Diagnostic Cost Group (DCG) demonstration was implemented.

- The passage and repeal of the Medicare Catastrophic Coverage Act affected Medicare risk plans and continues to affect them.

- Contract provisions have changed in mid-year, causing financial and administrative hardships to contractors.

- Major changes in the sampling procedures and problem correction activities of Peer Review Organizations (PROs) will be implemented in 1991.

- HCFA proposed raising the payment to plans to 100 percent of the AAPCC.

These notable issues and events related to the Medicare risk program will be discussed below.

Poor financial performance has been blamed for the sizeable number of plans that did not renew their Medicare risk contracts in each of the last three years. Most nonrenewing plans claim that under the Medicare risk program they chronically lost money due to the flawed AAPCC payment methodology (Tomkins and Pomeranz, 1988). Other factors reported to contribute to financial loss were high service utilization and the administrative costs of the program. Plans indicated that they would generally be willing to remain in the program if they were able to at least break-even. However, persistent financial losses in the program, which sometimes threatened the viability of the HMO's commercial business, were cited most often as the main reasons for risk-contract nonrenewal.

Another recent development--the DCG demonstration--centers on examination of ways to revise the AAPCC to match payments more closely to expected costs. AAPCC payment rates are currently based on age, sex, Medicaid status, institutional status, and reason for entitlement, but they do not include an adjustment for variations in enrollees' health status. The DCG payment model replaces the institutional status measure with a DCG classification based on enrollees' hospitalization experience during a 12 month base period. Hospital diagnoses have been collapsed into eight DCG categories, where higher numbered DCGs reflect higher expected future costs. The payment model in the pilot DCG demonstration updates the DCG rate cell classification of enrollees annually. The results of the evaluation of the demonstration are expected to determine whether such adjustments yield payments that more accurately reflect the cost of providing care for enrolled beneficiaries.

In 1988, Congress passed the Medicare Catastrophic Coverage Act expanding benefits for all Medicare beneficiaries. The repeal of this Act in 1989 eliminated these expanded benefits for fee-for-service beneficiaries, effective January 1, 1990; however, beneficiaries enrolled in the Medicare risk program are entitled to these benefits until December 31, 1990. (Since 1990 AAPCC payment rates, calculated in Summer 1989, were based on the provisions of the Catastrophic Coverage Act, Congress required all plans to provide the expanded benefits despite the repeal of the Act for 1990.)

The additional benefits that Medicare risk plans were required to cover in 1990 included: unlimited hospital days, skilled nursing facility (SNF) coverage for 150 days with no prior hospitalization stay requirement, elimination of "spell of illness" provisions and hospital coinsurance, reduced SNF coinsurance, extended hospice care coverage, unlimited outpatient mental health coverage, and pap smear test coverage. The effects of the changes between 1990 and 1991 in coverage and premiums remains to be seen.

Mid-year changes in coverage guidelines and compensation have also increased costs to plans. In early 1988, HCFA clarified its eligibility guidelines for skilled nursing facility and home health care benefits. The result was many new eligible cases for HMOs to cover, but no additional compensation. A provision in OBRA 1990 now requires HCFA to pay the costs of expanded benefits until the next contract year. Furthermore, each year plans with risk contracts face reductions in payment rates because of Gramm-Rudman provisions. These unpredictable reductions, which in the past have ranged from 1 to 2.3 percent, make planning very difficult and leave HMOs not knowing whether the withheld funds will ever be paid to them.

Proposed changes in PRO activities for 1991 could also affect the Medicare risk plans and program. These changes center around improving the sampling methodology and the satisfactory correction of identified problems. The volume of "no pay" bills submitted by hospitals to HCFA was much lower than expected, creating concern that the samples selected for PRO review from these bills would not be representative. The new sampling method will be to select a random sample of each HMO's enrollers and conduct reviews of the services they received. The other proposed change for 1991 is to focus PRO activities on the correction of identified problems, rather than simply on doing more extensive review when problems are encountered. In addition, PROs will assess the coordination of care provided by HMOs.

Another change that the Administration proposed for 1991 but Congress did not enact was to increase the payment to Medicare risk plans to 100 percent of the AAPCC. On May 8, 1990 the

House Ways and Means Health Subcommittee held a hearing on the subject. Advocates of raising the payment to plans to 100 percent of the AAPCC contended that continuing declines in admission rates and reductions in the average length of stay from the prospective payment system have reduced excess payments to hospitals to a point where HMOs can no longer find areas where major savings relative to fee-for-service can be realized. However, according to the opponents of raising the payment levels, several studies have shown that HMOs enroll healthier than average beneficiaries, resulting in overpayment for HMO services, so paying higher rates is unwarranted. Administration and HMO officials countered that if favorable selection were truly the case, HMOs would be rushing to join the program, instead of dropping out of the program. During negotiations to meet budget deficit targets, the proposal was withdrawn from the final budget. Nevertheless, these conflicting pieces of evidence have yet to be reconciled in a fully satisfactory manner. (A possible explanation of this incongruence, presented in Hill and Brown, 1990, is noted briefly in Section V.B below).

## C. DATA SOURCES

Data from several different files were used for this report. The majority of the data used in this report come from OPHC Monthly Reports of Medicare Prepaid Health Plans. These reports provided data on plan characteristics, enrollments, benefits and premiums. The May 1990 Group Health Plan Operations (GHPO) file was used to construct data on disenrollment during 1989, the number of market area competitors, and the county of largest enrollment (the AAPCC rate used in the analysis was the AAPCC for the county from which the HMO drew most of its members). Results from the report, "Biased Selection in the TEFRA HMO/CMP Program" (Hill and Brown, 1990), provided the measure of biased selection used to classify risk plans in several tables. The data collected during the 1988 site visits and presented in the first-year report, "Organizational and Operational Characteristics of TEFRA HMOs/CMPs" (Nelson, et al., 1990), provided additional characteristics on which HMOs were classified. Information on contract nonrenewal came from OPHC Monthly Medicare Prepaid Health Plan Reports and telephone discussions with HMO

representatives. The financial performance analysis relies heavily on the annual financial reports filed by the HMOs and on data obtained from a special HCFA file on the ACR calculations performed by HMOs.

In order to maintain consistency in the annual report data base between years, enrollment and plan characteristics data were collected from the January 1990 Monthly Medicare Prepaid Health Plan Report. Benefit and premium data for 1990 were compiled from the April 1990 Monthly Medicare Prepaid Health Plan Report, since that report was the first to contain the benefits and premiums for the new year.

## D. GUIDE TO THE REMAINDER OF THE REPORT

The Second Annual Report comprises seven chapters that document changes in program size, present new findings, summarize our research to data, and outline our remaining work. Chapter II presents the updated description of the program with respect to enrollment levels, enrollment growth, and disenrollment, contrasting the experience for 1989 with that of previous years. Chapter III presents the findings of a descriptive analysis of plans that did not renew their Medicare risk contracts for 1989 and 1990. Chapter IV offers some very preliminary findings from the financial performance analysis. Chapter V provides detailed summaries of the evaluation reports completed during the past year. Chapter VI lists the activities scheduled for the next twelve months of the evaluation.

# II. CHANGES IN TEFRA HMOS

While the total number of plans with risk contracts and the number with some enrollment both declined in 1990, the plans that remain have gained enough new enrollees to more than compensate for this loss in program enrollment. As of January 1990, there were 96 HMOs/CMPs with Medicare risk contracts, over 25 percent fewer than were operational one year earlier. However, enrollment in the program has grown about 5 percent, to 1.09 million beneficiaries. Changes in the characteristics of risk plans, such as benefits and premiums, were also mixed. The median premiums rose by only 5 percent (about $2) in 1990, but the proportion of plans offering various benefits changed markedly.

In this chapter we examine the patterns of plan participation, enrollments, disenrollments, and plan features over the past few years. The analysis draws on data from the Monthly Medicare Prepaid Health Plan Reports, the GHPO file, the organizational and operational characteristics case study report file, and the biased selection analysis report file. Section A describes the patterns and changes in enrollment and disenrollment over the past year. Section B describes changes over the past few years in organizational characteristics of risk plans and the benefits and premiums they offer.

## A. ENROLLMENT, DISENROLLMENT, AND THE SIZE DISTRIBUTION OF MEDICARE RISK PLANS

Two crude but readily available indicators of overall program success, given the voluntary nature of the program, are whether the number of plans that participate is growing and whether they are able to attract an increasing number of Medicare beneficiaries. Other indicators of how well the program is functioning are the amount of disenrollment that plans experience and whether they can replace disenrollees with new members. These measures also provide some indication of whether some types of HMOs are faring better than others in the Medicare risk program.

### 1. Enrollment Patterns Over Time and By Length of Contract

The Medicare risk program continued in 1990 to attract beneficiaries, as Table II.1 shows. Enrollment growth between 1989 and 1990 was slightly lower (5 percent) than during the previous year (6 percent) and approximated the total enrollment growth rate of 4.9 percent for all HMOs nationwide.[1] Yet, the number of participating plans continued to decline and in January 1990 reached its lowest point in three years, with only 96 plans holding risk contracts. This decline of over one-fourth in the number of plans with Medicare risk contracts contrasts sharply with the 1988 to 1989 period, over which there was no change in the number of plans. However, the recent decline is attributable largely to the decision of 27 Prudential plans to terminate their Medicare risk contracts without ever enrolling Medicare beneficiaries.

The decline in Medicare risk program participation among HMOs is somewhat less dramatic if we compare the number of plans that had some enrollments rather than the number of plans with contracts. Although a signed contract is some evidence of intent to participate, only plans that have enrolled beneficiaries have made any real commitment and can actually be considered program participants. As Table II.1 shows, the number of active plans dropped only 7 percent (from 101 to 94), less than half the 18 percent decline observed the previous year.

The average size of plans increased a respectable 13 percent, to over 11,500 beneficiaries, for the 94 plans with some enrollments. However, this rate of growth in plan size is less than half the 28 percent observed last year. About one of every 9 plans in 1990 had over 20,000 Medicare enrollees; about one in five had under 1,000 enrollees. There were slightly (about 4 percent) more plans with over 5,000 enrollees in 1990 than in 1989, continuing the changes observed from 1988 to 1989 of generally increasing plan size.

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[1] According to Susan Pisano, Group Health Association of America, enrollment grew by 1.7 million during 1990. At year-end 1990, total enrollment in the 569 HMOs in operation was 36.5 million. (Telephone conversation discussing the preliminary results of the 1990 GHAA survey.)

## TABLE II.1

## DISTRIBUTION OF MEDICARE RISK PLANS AND ENROLLMENTS BY SIZE OF ENROLLMENT, 1988-1990

| | 1990 | 1989 | 1988 |
|---|---|---|---|
| Total Number of Contracts | 96 | 133 | 132 |
| Number of Plans with Enrollment | 94 | 101 | 122 |
| Total Enrollment | 1,091,635 | 1,039,901 | 981,145 |
| Average Enrollment | 11,613 | 10,296 | 8,042 |
| **Percent of Plans with Enrollments:** | | | |
| 1-1,000 | 19.2 | 17.8 | 18.0 |
| 1,001-2,000 | 12.8 | 15.8 | 17.2 |
| 2,001-5,000 | 20.2 | 21.8 | 29.5 |
| 5,001-10,000 | 22.3 | 20.8 | 15.6 |
| 10,001-20,000 | 13.8 | 13.9 | 13.1 |
| >20,000 | 11.7 | 9.9 | 6.6 |
| **Percent of Total Enrollments in Plans with:** | | | |
| 1-1,000 | 0.6 | 0.7 | 1.0 |
| 1,001-2,000 | 1.5 | 2.1 | 3.1 |
| 2,001-5,000 | 6.4 | 7.7 | 12.8 |
| 5,001-10,000 | 14.5 | 14.9 | 14.5 |
| 10,001-20,000 | 17.0 | 19.4 | 22.9 |
| >20,000 | 60.0 | 55.2 | 45.8 |

NOTE: Data reflect the status of plans according to the OPHC Monthly Medicare Prepaid Health Plan Reports dated January 1990, 1989, and 1988, respectively.

Comparison of the proportion of total enrollments contained in plans of a given size shows that only plans with over 20,000 Medicare enrollees increased their share of total enrollments, again repeating the pattern set last year. Sixty percent of Medicare risk enrollments are now in the largest 12 percent of the HMOs, whereas only 2 percent of total enrollment is in the one-third of the plans with under 2,000 enrollees.

As the decline in the total number of plans suggests, the number of new plans joining the program is very small. Only 3 of the 76 "established" plans (those with over 1,000 enrollees) as of January 1990 entered the program in 1989 or 1990 (See Table II.2), and only 5 plans with any enrollment in January 1990 joined in 1989-1990. The great majority (57) of the 76 established plans in 1990 began enrolling in 1985 or 1986. As in previous years, the number of early plans continuing to operate declined by about 15 percent, but unlike the 1986-1988 period, they have not been replaced by an equal or larger number of new plans.

As might be expected, average size of plans in 1990 also varies with plan age--the length of time since the HMO first enrolled a Medicare beneficiary under a risk contract. However, the magnitude and pattern of differences is not what one might anticipate. Plans that began enrolling in 1985 are *much* larger on average than other plans, but 1986 entrants have smaller current enrollments on average than 1987 entrants. As we shall see in the next section, the high mean for 1987 plans is due to the existence of one very large plan than began in 1987. Later entrants (except for the one 1989 entrant) tend to be much smaller. All age groups experienced some growth in average plan size, but growth was most dramatic for the 1985 entrants (25 percent). This suggests that the smaller of the old plans have dropped out, which is not surprising since these plans may not have attained a sufficient number of Medicare members to adequately spread their risk. Also, small size after five years in the program is an indication that either the plan is not encouraging growth because of financial difficulties or that fewer beneficiaries find the plan appealing.

## TABLE II.2

## AVERAGE ENROLLMENT AND NUMBER OF ESTABLISHED PLANS OVER TIME, BY YEAR THAT PLAN BEGAN

| | Average Enrollment as of: | | | | |
|---|---|---|---|---|---|
| Year of First Enrollment | January 1986 | January 1987 | January 1988 | January 1989 | January 1990 |
| 1985 | 8,491 | 11,016 | 13,364 | 16,452 | 20,357 |
| | (54) | (52) | (47) | (40) | (34) |
| 1986 | 2,018 | 5,416 | 6,448 | 7,155 | 7,590 |
| | (2) | (46) | (43) | (28) | (23) |
| 1987 | | (0) | 7,070 | 11,555 | 12,985 |
| | | | (9) | (11) | (12) |
| 1988 | | | 2,774 | 2,738 | 3,685 |
| | | | (1) | (3) | (4) |
| 1989 | | | | 38,620 | 40,976 |
| | | | | (1) | (1) |
| 1990 | | | | | 3,497 |
| | | | | | (2) |
| Number of Established Plans | 56 | 98 | 100 | 83 | 76 |

NOTE: Established plans are those with at least 1,000 enrollees as of the point at which average enrollments are calculated. Note that the number of established plans with first enrollment effective in any year can actually increase over time because some plans will take a year or more to reach the threshold of 1,000 enrollees. Thus, among the plans that first began enrolling in 1987, none had 1,000 or more enrollees by January 1987, but 9 had this size by 1988, 11 had by 1989, and 12 had by 1990.

### 2. Distribution of Plans by Size

Enrollment in HMOs under the program varies substantially with plan characteristics, including model type, chain affiliation, previous experience with Medicare beneficiaries, and premium charged. Examining the distribution of plans by enrollment provides some indication of how success varies with characteristics and yields insight into how total Medicare risk enrollment is allocated across different types of HMOs.

The average size for the 94 active Medicare risk plans (those with any enrollment as of January 1990) is 11,6 :3 (See Table II.3). However, this mean gives a distorted picture of the "typical" plan because a few plans are very large--the median plan size is only 4,733. Plans are approximately evenly split into four size categories: under 1,000 enrollees, 1,000 to 5,000, 5,000 to 10,000, and over 10,000. The largest category encompasses over three-fourths of total Medicare risk enrollment.

Examination of plan size by plan type shows fairly sizeable differences. Staff model plans, which comprise 15 percent of the 94 plans, tend to be considerably larger than other model types with a median size of nearly 8,000 enrollees. For IPAs, the most prevalent model type, median enrollment is 40 percent smaller, at about 4,800 enrollees. Group model plans tend to have the fewest enrollees, with a median plan size of only about 2,100.

Table II.3 also provides information on the distribution of plans. Staff model plans, which are the least prevalent, have the largest median enrollment because none of these plans has less than 1,000 enrollees, and 43 percent have over 10,000. IPAs have the smallest proportion of large plans but have a much higher proportion of HMOs in the moderate size category (5,000 to 10,000 Medicare members).

For-profit status appears to have no bearing on plan size, but other characteristics are correlated with Medicare enrollment. Chain-affiliated plans are larger on average than independent plans, but have substantially smaller medians. This statistical anomaly arises because the two largest Medicare risk plans, Humana of South Florida and FHP of Los Angeles, are both chain-affiliated. In general,

## TABLE II.3

## DISTRIBUTION OF PLANS BY NUMBER OF ENROLLEES
## AS OF JANUARY 1990

| | Number of Plans | Enrollment | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 - 1,000 | 1,001-5,000 | 5,001-10,000 | >10,000 | Average Enrollment | Median Enrollment |
| **Total Enrollments** | | | | | | | |
| Number of Plans | 94 | 18 | 31 | 21 | 24 | 11,613 | 4,733 |
| Percent of Plans | | 19.2 | 33.0 | 22.3 | 25.5 | | |
| Enrollments | | 6,414 | 87,086 | 157,882 | 840,253 | | |
| Percent of Enrollments | | 0.6 | 8.0 | 14.5 | 77.0 | | |
| **Model Type** | | | | | | | |
| IPAs | 51 | 23.5 | 27.5 | 29.4 | 19.6 | 7,953 | 4,841 |
| Group | 29 | 20.7 | 37.9 | 13.8 | 27.6 | 10,107 | 2,122 |
| Staff | 14 | 0.0 | 42.9 | 14.3 | 42.8 | 28,066 | 7,952 |
| **Tax Status** | | | | | | | |
| For-profit | 49 | 20.4 | 32.6 | 24.5 | 22.4 | 12,937 | 4,398 |
| Not-for-profit | 45 | 17.8 | 33.3 | 20.0 | 28.9 | 10,172 | 4,841 |
| **Chain Affiliation** | | | | | | | |
| Affiliated | 69 | 23.2 | 34.8 | 18.8 | 23.2 | 12,624 | 4,093 |
| Independent | 25 | 8.0 | 28.0 | 32.0 | 32.0 | 8,825 | 6,460 |
| **Number of TEFRA Risk Plans in Chain** | | | | | | | |
| 1 Plan | 12 | 16.7 | 33.3 | 50.0 | 0.0 | 5,206 | 5,284 |
| 2 Plans | 22 | 22.7 | 40.9 | 18.2 | 18.2 | 6,061 | 2,912 |
| 3 Plans | 12 | 33.3 | 16.7 | 8.3 | 41.7 | 22,030 | 6,541 |
| More than Three Risk Plans in Chain | 23 | 21.7 | 39.1 | 8.7 | 30.4 | 17,341 | 2,674 |
| **Region** | | | | | | | |
| Boston | 9 | 11.1 | 55.5 | 22.2 | 11.1 | 4,960 | 4,594 |
| New York | 9 | 11.1 | 44.4 | 33.3 | 11.1 | 6,906 | 4,403 |
| Philadelphia | 6 | 50.0 | 33.4 | 0.0 | 16.7 | 3,153 | 954 |
| Atlanta | 9 | 0.0 | 33.3 | 33.3 | 23.3 | 23,358 | 8,484 |
| Chicago | 17 | 17.7 | 23.5 | 29.4 | 29.5 | 10,120 | 7,069 |
| Dallas | 9 | 22.2 | 55.5 | 11.1 | 11.1 | 3,262 | 2,284 |

TABLE II.3 (continued)

| | | Enrollment | | | | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | 1 - 1,000 | 1,001-5,000 | 5,001-10,000 | >10,000 | Average Enrollment | Median Enrollment |
| **Region (continued)** | | | | | | | |
| Kansas City | 7 | 28.6 | 71.7 | 0.0 | 0.0 | 2,190 | 2,590 |
| Denver | 8 | 50.0 | 12.5 | 25.0 | 12.5 | 4,367 | 1,057 |
| San Francisco | 14 | 14.3 | 7.1 | 21.4 | 57.1 | 28,387 | 10,968 |
| Seattle | 6 | 0.0 | 16.7 | 33.3 | 50.0 | 17,765 | 11,481 |
| **Previous Medicare Contract** | | | | | | | |
| Demo | 20 | 0.0 | 30.0 | 25.0 | 45.0 | 19,568 | 8,760 |
| Cost | 9 | 0.0 | 33.3 | 22.2 | 44.4 | 18,970 | 9,361 |
| HCPP[b] | 8 | 0.0 | 12.5 | 12.5 | 75.0 | 34,779 | 17,763 |
| Other | 6 | 16.7 | 50.0 | 33.3 | 0.0 | 3,763 | 3,497 |
| None | 51 | 33.3 | 35.3 | 21.6 | 9.8 | 4,485 | 1,507 |
| **Year Began Enrolling** | | | | | | | |
| 1985 | 36 | 5.6 | 27.8 | 25.0 | 41.7 | 19,235 | 8,261 |
| 1986 | 26 | 11.5 | 42.3 | 23.1 | 23.1 | 6,755 | 4,733 |
| 1987 | 15 | 20.0 | 33.3 | 33.3 | 13.3 | 10,478 | 4,398 |
| 1988 | 12 | 66.7 | 25.0 | 8.3 | 0.0 | 1,419 | 447 |
| 1989 | 2 | 50.0 | 0.0 | 0.0 | 50.0 | 20,908 | ** |
| 1990 | 3 | 33.3 | 66.7 | 0.0 | 0.0 | 2,508 | ** |
| **Plan Premium ($/month)** | | | | | | | |
| 0 | 16 | 6.3 | 18.8 | 25.0 | 50.0 | 25,695 | 9,788 |
| 1-20 | 8 | 12.5 | 25.0 | 25.0 | 37.5 | 19,234 | 8,196 |
| 21-30 | 8 | 0.0 | 75.0 | 12.5 | 12.5 | 6,138 | 3,188 |
| 31-40 | 20 | 20.0 | 40.0 | 10.0 | 30.0 | 10,999 | 4,510 |
| 41-50 | 18 | 27.8 | 27.8 | 33.3 | 11.1 | 5,780 | 4,121 |
| >50 | 24 | 29.2 | 29.2 | 25.0 | 16.7 | 6,397 | 3,462 |
| **Prescription Drugs Covered[a]** | | | | | | | |
| Yes | 32 | 9.4 | 28.1 | 18.8 | 43.8 | 17,985 | 8,679 |
| No | 62 | 24.2 | 35.5 | 24.2 | 16.1 | 8,325 | 3,904 |
| **Dental Care** | | | | | | | |
| Yes | 21 | 14,3 | 38.1 | 14.3 | 33.3 | 15,574 | 4,658 |
| No | 73 | 20.6 | 31.5 | 24.7 | 23.3 | 10,474 | 4,808 |

TABLE II.3 (continued)

| | | Enrollment | | | | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | 1 - 1,000 | 1,001-5,000 | 5,001-10,000 | >10,000 | Average Enrollment | Median Enrollment |
| **Preventive Care Covered** | | | | | | | |
| Yes | 67 | 20.9 | 34.3 | 20.9 | 23.9 | 9,962 | 4,472 |
| No | 27 | 14.8 | 29.6 | 25.9 | 29.6 | 15,709 | 5,693 |
| **Eye Exams Covered** | | | | | | | |
| Yes | 80 | 20.0 | 31.3 | 20.0 | 28.8 | 12,815 | 4,733 |
| No | 14 | 14.3 | 42.9 | 35.7 | 7.1 | 4,745 | 4,306 |
| **Ear Exams Covered** | | | | | | | |
| Yes | 48 | 18.8 | 33.3 | 20.8 | 27.1 | 7,945 | 4,733 |
| No | 46 | 19.6 | 32.6 | 23.9 | 23.9 | 15,440 | 4,729 |
| **Plans Offering a Flexible Benefit Package** | | | | | | | |
| Yes | 4 | 0.0 | 25.0 | 25.0 | 50.0 | 35,663 | ** |
| No | 90 | 20.0 | 33.3 | 22.2 | 24,4 | 10,544 | 4,637 |
| **Number of Plans in Area**[c] | | | | | | | |
| 1 | 29 | 0.0 | 62.0 | 24.1 | 13.8 | 5,667 | 3,880 |
| 2 | 14 | 0.0 | 35.7 | 28.6 | 35.7 | 12,867 | 7,119 |
| 3 | 9 | 0.0 | 11.1 | 55.6 | 33.3 | 10,981 | 7,404 |
| >3 | 23 | 0.0 | 22.7 | 22.7 | 55.9 | 29,415 | 11,595 |
| **AAPCC**[c] | | | | | | | |
| Top Quartile | 18 | 0.0 | 16.7 | 33.3 | 50.0 | 28,632 | 9,877 |
| 50th-75th Percentile | 19 | 0.0 | 47.4 | 21.1 | 31.6 | 12,850 | 5,727 |
| 25th-50th Percentile | 18 | 0.0 | 38.9 | 22.2 | 38.9 | 12,648 | 6,765 |
| Bottom Quartile | 19 | 0.0 | 52.6 | 36.8 | 10.5 | 4,790 | 3,928 |
| **Biased Selection Measure**[d] | | | | | | | |
| Favorable | 39 | 2.6 | 28.2 | 23.1 | 46.2 | 20,820 | 9,171 |
| Neutral | 28 | 3.6 | 39.3 | 39.3 | 17.9 | 7,390 | 5,928 |

TABLE II.3 (continued)

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NOTE: Calculations are for all plans with positive enrollment as of January 1990, except for tabulations by number of plans in market area and by AAPCC rates. For these calculations, only plans with enrollment in excess of 1,000 were used. Number of plans in market area and the plan's county with the largest number of enrollees (for identifying the county AAPCC rates to use for the HMOs) were determined from the May 1988 GHPO file.

[a] Indicates whether prescription drug coverage is offered as part of the plan's basic benefit package.

[b] Includes contracts for Group Practice Prepayment Plans and Health Care Prepayment Plans.

[c] Number of plans in area and AAPCC quartiles were calculated for established plans only (plans with over 1,000 enrollees in January 1990). Share Health Plan, Minnesota, operates in both the Minneapolis and Duluth market areas and was therefore counted twice in the "Number of Plans in Area" category. As a result, the total number of plans in the "Number of Plans in Area" category exceeds the total number of plans in the "AAPCC" category by 1.

[d] The biased selection measure is obtained from a project report (Brown and Hill, 1990), which is summarized in Chapter V. The measure, the ratio of average preenrollment reimbursements for enrollees to average reimbursements for area nonenrollees (adjusted for differences in distributions on AAPCC factors), is available only for those 1990 plans that were in operation in 1988. Favorable selection is defined as an adjusted prior reimbursement measure less than .8; neutral selection is defined as an adjusted prior reimbursement measure between .8 and the sample maximum of 1.04. Most of the plans in the "neutral" selection category had ratios of .81 to .90.

** Indicates that too few plans (5 or fewer) were in this cell to compute a meaningful median.

the chain plans, which comprise nearly three-fourths of the Medicare risk plans, tend to be small; nearly one-fourth have fewer than 1,000 enrollees, compared to 8 percent of the independent plans. This is not surprising, since independents cannot afford the fixed costs of participation nor bear the financial risk unless both are spread over an adequate enrollment base. Chains, however, can spread some of the fixed costs of participation and their risk across their total enrollments and may be better able to bear short run losses in some of their plans.

Enrollments vary widely with the number of Medicare risk plans in the chain, but not in a uniform manner. Plans in chains having only one or two Medicare risk plans tend to be smaller on average than those in chains with three or more Medicare risk plans. However, this regularity is due to the presence of a few large plans. Median enrollments are much larger for plans in chains with one or three affiliates than for plans in chains with either two or more than three plans.

Previous (pre-TEFRA) experience with Medicare beneficiaries also is strongly linked to plan size. Plans with no prior experience comprise over half of the active plans but have median Medicare enrollment of only 1,500 members. Only 5 of the plans (10 percent) that lack pre-TEFRA experience with Medicare members have more than 10,000 enrollees in 1990. About half of the plans with prior demonstration, cost, or HCPP contracts have over 10,000 enrollees. Plans that held HCPP contracts before converting to a Medicare risk contract were especially likely to be sizeable.

As indicated in the previous table (II.2), plans that began enrolling Medicare members in 1985 tended to have more enrollees in 1990 than plans that started up later. Over 40 percent of these 1985 plans had 10,000 enrollees or more, yielding a median enrollment level of nearly 8,300. Plans joining in 1986 and 1987, the period during which the Medicare risk program grew most, had much smaller median enrollments of 4,700 and 4,400, respectively.[2] Later entrants tend to be very small, with only two of the 17 exceeding 5,000 enrollees.

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[2] Note that the median enrollment for 1986 and 1987 entrants are quite similar, whereas the means are quite different and suggest that later entrants are larger. This is due to the fact that one very large plan started up in 1987.

Plans with the lowest premiums tend to be the largest by a substantial margin, as might be expected. The 24 plans with no premiums or premiums of $20 or less have median enrollments of about 10,000 and 8,000 respectively, roughly twice as large as the median enrollment of plans charging $21 to $50 per month. The 24 plans charging over $50 per month have even smaller median enrollments (about 3,500).

Coverage of prescription drugs is the only benefit that is linked to higher enrollments. Plans covering prescription drugs (about one-third of all plans) have median enrollments over twice as large as plans that do not provide this benefit. Median enrollments vary little with whether or not plans cover dental care, preventive care, and ear and eye exams.

Plan size also varies widely and directly with the number of plans in the area. About one-fourth of the risk plans are located in areas served by four or more risk plans, and these plans have a median enrollment of over 11,000 members. This median enrollment is over 50 percent larger than the median enrollment of plans in areas with two or three HMOs (about 7,000 members), and nearly three times larger than the median enrollment of under 4,000 enrollees for plans in areas with no other HMOs.[3] HMOs are attracted to areas with large numbers of Medicare beneficiaries and other factors conducive to risk contracting (for example, high AAPCC rates or widespread use of HMOs by the commercial sector), and HMOs in such areas are likely to be able to attract substantial numbers of enrollees. It is also the case that HMOs in areas with multiple plans tend to be the earliest entrants, which are typically larger than more recent entrants.

Plans in areas with high AAPCC rates tend to have substantially higher enrollments than plans in areas with lower payment rates. The median enrollment is nearly 10,000 for plans with AAPCC rates in the highest quartile, compared to around 6,000 for plans in the 25th to 75th percentiles and 4,000 for plans in the bottom quartile. Although plans in these categories differ on other dimensions as well (such as year of entry) it is likely that HMOs in areas where AAPCC rates are highest will

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[3] Note that this distribution excludes plans with less than 1,000 enrollees, since precise market area definitions for these plans were not readily available.

be the most aggressive about attracting additional beneficiaries. Furthermore, the higher AAPCC rate enables these HMOs to offer additional benefits and/or hold premiums down, which also attracts more beneficiaries.

The final comparison in Table II.3 is for plans classified by whether they experienced neutral or favorable selection, as measured by the ratio of average reimbursements for enrollees during the calendar years preceding their enrollment to average reimbursement for nonenrollees residing in the same market area (adjusted for differences in distribution across AAPCC rate cells). Plans with ratios below .80 were classified as experiencing very favorable selection; those with ratios of .80 to 1.0 were considered to have somewhat favorable or neutral selection, but are referred to here as neutral selection plans for ease of discussion (one plan, with a ratio of 1.04, was also classified here with the neutral selection plans). These estimates were taken from the biased selection report, and are available only for 67 plans that were operational in 1988 and had enrolled at least 1,000 Medicare beneficiaries by that point.

As one might expect, plans with the most favorable selection had larger enrollments in general, with a median enrollment of nearly 9,200 compared to the median of about 5,700 for plans with only slightly favorable or neutral selection. Furthermore, nearly half of these plans with favorable selection had enrollments exceeding 10,000 whereas only one in seven of the plans with neutral selection had enrollment this great. Plans experiencing favorable selection have the greatest incentive (other things being equal) to attract large numbers of enrollees, and can offer lower premiums and more benefits, which further contribute to enrollment growth. On the other hand, one might expect that an HMO that draws representatively from all risk pools rather than primarily from the low risk cases might attract a larger number of total enrollees. Our results suggest that the latter factor is outweighed by the financial incentives favoring higher enrollments in plans with favorable selection.

### 3. Distribution of Plans by Change in Enrollment

Plan growth provides a measure of how plans are currently faring and provides a guide to how the program is changing. Thus, we supplement the analysis of plan size with an examination of the patterns of how the enrollments of individual plans have changed, in Table II.4.

Although average enrollments per plan increased by 13 percent, over one-fourth of the 87 current plans that were in operation in January 1989 had lower enrollments one year later, and 10 percent suffered enrollment losses of over 10 percent. On the other hand, over one-fifth of the plans *increased* their enrollments by more than 20 percent, and over half increased by 1 to 20 percent. Thus, the recent enrollment experience of Medicare risk plans varies widely.

Enrollment changes differ considerably with plan characteristics.

- IPAs and group model plans were much more likely to experience large gains in enrollment than staff model plans, but there were no major differences across plan types in the percent that lost enrollment.
- Nearly half of the for-profit plans grew by at least 10 percent, compared to just over one-fourth of the not-for-profits, but there was little difference in the percent with losses.
- One in three of the chain-affiliated plans experienced enrollment losses, compared to only one in five independents. However chain-affiliated plans were also more likely to have enrollment growth exceeding 20 percent.
- Although there are too few plans in the 10 HCFA regions to draw any inferences about geographic differences, the San Francisco and Dallas regions both have a high proportion of plans (nearly two-thirds) with growth rates exceeding 10 percent.
- Plans with cost or demonstration experience tended to have more modest changes in enrollment, in either direction, than either plans with no experience or plans that had been HCPPs.
- Enrollment changes also varied with the number of plans in an area, but in an odd way. Plans in areas with two or three plans experienced the most losses; over 40 percent of those plans lost enrollment. Plans in areas with more than 3 plans tended to have modest increases and decreases.
- As expected, it was more common for small plans than larger plans to exhibit high rates of growth; however, the largest plans (those over 10,000 enrollees) were nearly as likely as the smallest plans to grow at rates of 10 percent or more. Furthermore, none of the largest plans lost more than 10 percent of their enrollees. Thus, the large plans continue to be successful in attracting new beneficiaries.

TABLE II.4

## DISTRIBUTION OF PLANS BY PERCENT CHANGE IN ENROLLMENT BETWEEN JANUARY 1989 AND JANUARY 1990

| | Percent Change in Enrollment | | | | | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Increase >20% | Increase 10-20% | Increase 0-10% | Decrease 0-10% | Decrease >10% | Median |
| All Medicare Risk HMOs with Members in January 1989 and January 1990 | 87 | 21.8 | 13.8 | 35.6 | 18.4 | 10.4 | 5.1 |
| **Plan Type** | | | | | | | |
| IPAs | 40 | 25.0 | 17.5 | 25.0 | 22.5 | 10.0 | 6.4 |
| Groups | 35 | 25.7 | 11.4 | 37.1 | 17.1 | 8.6 | 3.5 |
| Staffs | 12 | 0.0 | 8.3 | 66.7 | 8.3 | 16.7 | 3.2 |
| **Tax Status** | | | | | | | |
| For-profit | 37 | 29.7 | 16.2 | 21.6 | 16.2 | 16.2 | 6.0 |
| Not-for-profit | 50 | 16.0 | 12.0 | 46.0 | 20.0 | 6.0 | 3.5 |
| **Chain Affiliated** | | | | | | | |
| Affiliated | 60 | 26.7 | 10.0 | 30.0 | 23.3 | 10.0 | 3.6 |
| Independent | 27 | 11.1 | 22.2 | 48.2 | 7.4 | 11.1 | 5.6 |
| **Region** | | | | | | | |
| Boston | 9 | 22.2 | 11.1 | 44.4 | 0.0 | 22.2 | 3.5 |
| New York | 8 | 25.0 | 0.0 | 50.0 | 12.5 | 12.5 | 3.9 |
| Philadelphia | 6 | 16.7 | 33.3 | 16.7 | 33.3 | 0.0 | 7.5 |
| Atlanta | 9 | 11.1 | 22.2 | 55.6 | 11.1 | 0.0 | 5.6 |
| Chicago | 17 | 17.7 | 0.0 | 47.1 | 29.4 | 5.9 | 1.1 |
| Dallas | 8 | 37.5 | 25.0 | 0.0 | 0.0 | 37.5 | 14.4 |
| Kansas City | 5 | 0.0 | 0.0 | 20.0 | 60.0 | 20.0 | -7.3 |
| Denver | 5 | 20.0 | 0.0 | 60.0 | 0.0 | 20.0 | 5.9 |
| San Francisco | 14 | 28.6 | 35.7 | 14.3 | 21.4 | 0.0 | 14.4 |
| Seattle | 6 | 33.3 | 0.0 | 50.0 | 16.7 | 0.0 | 7.7 |
| **Previous Medicare Experience** | | | | | | | |
| Cost | 10 | 0.0 | 30.0 | 40.0 | 30.0 | 0.0 | 3.2 |
| Demo | 23 | 4.4 | 4.4 | 52.2 | 34.8 | 4.4 | 1.1 |
| HCPP | 7 | 42.9 | 14.3 | 28.6 | 0.0 | 14.3 | 18.0 |
| No Experience | 47 | 31.9 | 14.9 | 27.7 | 10.6 | 14.9 | 6.9 |

TABLE II.4 (continued)

| | Percent Change in Enrollment | | | | | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Increase >20% | Increase 10-20% | Increase 0-10% | Decrease 0-10% | Decrease >10% | Median |
| **Number of Plans in Area[a]** | | | | | | | |
| 1 | 29 | 24.1 | 13.8 | 37.9 | 13.8 | 10.3 | 3.6 |
| 2 | 13 | 30.8 | 7.7 | 23.1 | 38.5 | 0.0 | 6.0 |
| 3 | 9 | 11.1 | 0.0 | 44.4 | 22.2 | 22.2 | 3.7 |
| >3 | 23 | 8.7 | 26.1 | 43.5 | 17.4 | 4.3 | 5.1 |
| **Year Began Enrolling Under TEFRA** | | | | | | | |
| 1985 | 36 | 5.6 | 8.3 | 44.4 | 30.6 | 11.1 | 1.4 |
| 1986 | 25 | 12.0 | 28.0 | 40.0 | 8.0 | 12.0 | 5.9 |
| 1987 | 15 | 46.7 | 13.3 | 13.3 | 13.3 | 13.3 | 18.0 |
| 1988 | 8 | 75.0 | 0.0 | 12.5 | 12.5 | 0.0 | 92.0 |
| 1989 | 2 | NA | NA | NA | NA | NA | 6.6 |
| **Plan Size in January 1989** | | | | | | | |
| <1,000 | 16 | 43.8 | 6.3 | 25.0 | 6.3 | 18.8 | 11.7 |
| 1,000-5,000 | 28 | 25.0 | 14.3 | 25.0 | 21.4 | 14.3 | 1.5 |
| 5,001-10,000 | 20 | 5.0 | 15.0 | 40.0 | 30.0 | 10.0 | 2.7 |
| >10,000 | 23 | 17.4 | 17.4 | 52.2 | 13.0 | 0.0 | 6.1 |
| **Plan Premium ($/month)** | | | | | | | |
| 0 | 13 | 23.1 | 38.5 | 23.1 | 15.4 | 0.0 | 17.7 |
| 1-20 | 12 | 50.0 | 0.0 | 16.7 | 25.0 | 8.3 | 19.1 |
| 21-30 | 12 | 33.3 | 8.3 | 25.0 | 33.3 | 0.0 | 5.6 |
| 31-40 | 17 | 17.7 | 23.5 | 23.5 | 17.7 | 17.7 | 4.4 |
| 41-50 | 13 | 15.4 | 0.0 | 53.9 | 15.4 | 15.4 | 1.1 |
| >50 | 20 | 5.0 | 10.0 | 60.0 | 10.0 | 15.0 | 2.7 |
| **Change in Basic Premium 1989-1990** | | | | | | | |
| Decreased Premium or No Change | 39 | 23.1 | 10.3 | 38.5 | 23.1 | 5.1 | 5.2 |
| Increase less than $5 | 20 | 10.0 | 20.0 | 20.0 | 30.0 | 20.0 | 0.4 |
| Increase $5-$10 | 13 | 23.1 | 15.4 | 46.2 | 7.7 | 7.7 | 5.9 |
| Increase >$10 | 15 | 33.3 | 13.3 | 40.0 | 0.0 | 13.3 | 7.3 |

TABLE II.4 (continued)

| | Percent Change in Enrollment | | | | | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Increase >20% | Increase 10-20% | Increase 0-10% | Decrease 0-10% | Decrease >10% | Median |
| **Change in Basic Premium 1988-1989[b]** | | | | | | | |
| Decreased Premium or No Change | 24 | 29.2 | 29.2 | 20.8 | 12.5 | 8.3 | 14.8 |
| Increase less than $5 | 20 | 15.0 | 15.0 | 50.0 | 15.0 | 5.0 | 5.0 |
| Increase $5-$10 | 13 | 23.1 | 15.4 | 15.4 | 38.5 | 7.7 | 3.5 |
| Increase >$10 | 21 | 9.5 | 0.0 | 52.4 | 14.3 | 23.8 | 1.8 |
| **Prescription Drugs Covered[c]** | | | | | | | |
| Yes | 34 | 20.6 | 14.7 | 44.1 | 11.8 | 8.8 | 5.4 |
| No | 53 | 22.6 | 13.2 | 30.2 | 22.6 | 11.3 | 4.2 |
| **AAPCC 1989[d]** | | | | | | | |
| Top Quartile | 17 | 17.7 | 23.5 | 17.7 | 41.2 | 0.0 | 5.2 |
| 50th-75th Percentile | 17 | 17.7 | 17.7 | 29.4 | 5.9 | 29.4 | 5.6 |
| 25th-50th Percentile | 18 | 27.8 | 5.6 | 50.0 | 16.7 | 0.0 | 3.5 |
| Bottom Quartile | 15 | 0.0 | 6.7 | 60.0 | 13.3 | 20.0 | 0.9 |
| **Biased Selection Measure[e]** | | | | | | | |
| Favorable | 39 | 12.8 | 15.4 | 41.0 | 23.1 | 7.7 | 3.5 |
| Neutral | 28 | 21.4 | 10.7 | 35.7 | 14.3 | 17.9 | 5.0 |

NOTE: Growth rates are for all plans with enrollments in January 1989 and January 1990. Seven plans that had enrolment in 1990 did not have enrollment or did not exist in 1989. Thus, there are seven fewer plans in Table II.4 than in Table II.3. Data on plan characteristics were assembled from the January 1989 OPHC report for all characteristics except AAPCC and number of plans in area which were determined from the May 1988 GHPO file.

[a] Humana Health Plan of Texas, in a two-plan market area, began risk contracting after January 1989 and therefore, has no enrollment growth data. As a result, the total number of plans in the "Number of Plans in Area" category in this table is one fewer than in Table II.3. Number of plans in area were calculated for established plans only (plans with over 1,000 enrollees in January 1990).

[b] Includes the 78 plans that were in operation in January 1988, 1989, and 1990 with enrollments in January 1989 and 1990.

[c] Refers to whether prescription drug coverage is offered as part of the plan's basic benefit package.

[d] AAPCC quartiles were calculated for established plans only (plans with over 1,000 enrollees in January 1989). Only 67 of the 80 plans with over 1,000 enrollees in January 1989 remained with enrollment in January 1990.

[e] The biased selection measure is obtained from a project report (Brown and Hill, 1990), which is summarized in Chapter V. The measure, the ratio of average preenrollment reimbursements for enrollees to average reimbursements for area nonenrollees (adjusted for differences in distributions on AAPCC factors), is available only for those 1990 plans that were in operation in 1988. Favorable selection is defined as an adjusted prior reimbursement measure less than .8; neutral selection is defined as an adjusted prior reimbursement measure between .8 and the sample maximum of 1.04. Most of the plans in the "neutral" selection category had ratios of .81 to .90.

- The probability of a 10 percent or larger growth in enrollment varies inversely with premium, as one might expect. Over 60 percent of plans with no premium grew by 10 percent or more, compared to only 15 percent of the plans charging $40 or more. The no-premium plans also were least likely to lose enrollments, but in all other premium ranges the proportion of plans with losses ranges from one-fourth to one-third.

- Plans with the greatest *increase* in premiums from 1989 to 1990 had the most growth. This may be indicative of a lagged relationship between premiums and growth--plans may offer low premiums to attract additional enrollees and then increase premiums in subsequent years in order to cover costs. The very low enrollment growth between 1989 and 1990 of plans with the greatest increase in premiums from 1988 to 1989 supports this pattern. The inverse relationship between premium level and enrollment growth is further evidence of this pattern.

- Plans offering prescription drugs in their basic coverage grew no faster than plans without this benefit, but were less likely to lose enrollments.

- Plans in areas with the lowest AAPCCs grew at a much slower pace than other plans. Only about 7 percent of the plans in areas with the lowest AAPCCs grew more than 10 percent while at least one third of plans in higher AAPCC categories grew by more than 10 percent.

- Enrollment growth appears to vary little with the extent of biased selection experienced. Plans with the most favorable selection tended to have more modest changes in enrollment in either direction, but the differences were slight.

These results, taken together, indicate that plans that have achieved a substantial size and can offer coverage for a modest premium continue to do very well, as measured by enrollment growth. For-profit plans also appear to be more aggressive about plan growth than are non-profits. It also appears that plans need not offer a prescription drug benefit in order to attract new beneficiaries. However, the findings also indicate that plan growth cannot be taken for granted--many plans are shrinking, either by choice or due to inability to attract more new enrollees than are lost through disenrollment to another HMO or the fee-for-service sector. Losses are especially likely for HMOs that have been in the Medicare risk program the longest (since 1985).

Since many of the largest plans are those that joined earliest, findings concerning the types of plans most likely to gain or lose enrollments are somewhat at odds. The findings suggest some interactive effects: either the large plans experiencing the most enrollment growth are the younger of the large plans, or the 1985 plans with losses tend to be those that never achieved a substantial

size. Further inspection of the data reveals that the latter explanation is correct. Only three of the 23 large plans experienced an enrollment loss, and none of these exceeded 10 percent. Thus, the fifteen 1985 entrants that lost enrollments are primarily those with small or modest enrollments (eight of these plans had enrollments less than 5,000).

### 4. Distribution of Plans By Disenrollment Ratio and Replacement Ratio for 1989

In addition to enrollment level and enrollment growth, the amount of disenrollment a plan experiences per year is an indication of the performance of an HMO. Table II.5 displays plan characteristics by 1989 disenrollment ratio. There are numerous ways of measuring disenrollment, but, for the purpose of this table, the disenrollment ratio is defined as the percent of persons enrolled at any time during 1989 who disenrolled during the year (calculated by dividing the number of disenrollees during 1989 by the sum of December 1989 enrollment and disenrollment during 1989).[4]

The median disenrollment ratio for 1989 was 10.9 percent, but the ratio ranged from 5.0 to 41.0 across plans. The ratio also varied with some plan characteristics. For example, plans in the Atlanta region experienced a median disenrollment ratio of nearly 17 percent, while plans in the Seattle region had a median ratio of 7.1 percent.

The strongest relationship between disenrollment and plan characteristics observed was the much higher median disenrollment rate for plans charging a premium of less than $20 per month (about 15 percent) than for plans with higher fees (under 10 percent). This finding suggests that many who join HMOs with the lowest premiums may do so for the major cost savings, with perhaps less consideration of other aspects of membership in the HMO, whereas enrollees who decide to join HMOs charging somewhat higher premiums consider the overall HMO benefit and premium package. However, HMOs charging low premiums are often the ones facing the most competition from other

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[4] Disenrollment ratios comprise disenrollments for any reason, including death. Approximately three percent of enrollees die annually.

TABLE II.5

## DISTRIBUTION OF PLANS BY DISENROLLMENT RATIO FOR 1989

| | | Disenrollment Ratios | | | Mean Disenrollment Ratio (percent) | Median Disenrollment Ratio (percent) |
|---|---|---|---|---|---|---|
| | Number of Plans | 0-10% | 10.1-20% | >20% | | |
| **All Plans** | 73 | 45.2 | 46.6 | 8.2 | 12.4 | 10.9 |
| **Model Type** | | | | | | |
| IPA | 32 | 31.3 | 62.5 | 6.3 | 13.3 | 12.2 |
| Group | 29 | 55.2 | 34.5 | 10.3 | 11.8 | 9.2 |
| Staff | 12 | 58.3 | 33.3 | 8.3 | 11.4 | 9.9 |
| **Tax Status** | | | | | | |
| For-profit | 31 | 29.0 | 58.1 | 12.9 | 14.5 | 12.5 |
| Not-for-profit | 42 | 57.1 | 38.1 | 4.8 | 10.8 | 8.9 |
| **Chain Affiliated** | | | | | | |
| Affiliated | 50 | 38.0 | 56.0 | 6.0 | 12.9 | 11.7 |
| Independent | 23 | 60.9 | 26.1 | 13.0 | 11.2 | 9.3 |
| **Region** | | | | | | |
| Boston | 8 | 75.0 | 25.0 | 0.0 | 8.6 | 7.1 |
| New York | 7 | 14.3 | 85.7 | 0.0 | 13.8 | 14.4 |
| Philadelphia | 3 | 33.3 | 66.7 | 0.0 | 10.7 | 10.1 |
| Atlanta | 9 | 33.3 | 33.3 | 33.3 | 18.3 | 16.7 |
| Chicago | 14 | 57.1 | 35.7 | 7.1 | 11.2 | 9.9 |
| Dallas | 6 | 33.3 | 50.0 | 16.7 | 13.9 | 11.7 |
| Kansas City | 4 | 25.0 | 75.0 | 0.0 | 12.9 | 13.0 |
| Denver | 4 | 50.0 | 50.0 | 0.0 | 10.9 | 9.5 |
| San Francisco | 12 | 41.7 | 50.0 | 8.3 | 12.6 | 12.5 |
| Seattle | 6 | 66.7 | 33.3 | 0.0 | 9.2 | 8.1 |
| **Previous Medicare**[a] | | | | | | |
| Demo | 23 | 34.8 | 52.2 | 13.0 | 13.1 | 12.8 |
| Cost | 9 | 44.4 | 55.6 | 0.0 | 11.5 | 10.8 |
| HCPP | 7 | 71.4 | 28.6 | 0.0 | 10.0 | 8.5 |
| No Experience | 34 | 47.1 | 44.1 | 8.8 | 12.7 | 10.9 |

TABLE II.5 (continued)

| | | Disenrollment Ratios | | | | |
|---|---|---|---|---|---|---|
| | Number of Plans | 0-10% | 10.1-20% | >20% | Mean Disenrollment Ratio (percent) | Median Disenrollment Ratio (percent) |
| **Year Began Enrolling Under TEFRA** | | | | | | |
| 1985 | 34 | 44.1 | 47.1 | 8.8 | 12.3 | 10.9 |
| 1986 | 22 | 50.0 | 45.5 | 4.5 | 11.3 | 10.3 |
| 1987 | 12 | 41.7 | 41.7 | 16.7 | 15.1 | 11.8 |
| 1988 | 3 | 33.3 | 66.7 | 0.0 | 12.1 | 12.5 |
| 1989 | 1 | 100.0 | 0.0 | 0.0 | 5.8 | 5.8 |
| **Plan Size, 1/89** | | | | | | |
| <1,000 | 2 | 0.0 | 100.0 | 0.0 | 15.8 | 15.8 |
| 1,001-5,000 | 28 | 46.4 | 50.0 | 3.6 | 11.6 | 11.6 |
| 5,001-10,000 | 20 | 45.0 | 40.0 | 15.0 | 13.4 | 10.1 |
| >10,000 | 23 | 47.8 | 43.5 | 8.7 | 12.1 | 11.4 |
| **Plan Premium, 1/89 ($ per month)** | | | | | | |
| 0 | 13 | 15.4 | 53.9 | 30.8 | 17.7 | 15.5 |
| 1-20 | 10 | 20.0 | 70.0 | 10.0 | 15.3 | 14.5 |
| 21-30 | 9 | 66.7 | 33.3 | 0.0 | 10.2 | 9.7 |
| 31-40 | 14 | 50.0 | 50.0 | 0.0 | 10.9 | 9.7 |
| 41-50 | 10 | 60.0 | 30.0 | 10.0 | 10.7 | 9.3 |
| >50 | 17 | 58.8 | 41.2 | 0.0 | 10.0 | 9.3 |
| **Change in Plan Premium, 1/89-1/90** | | | | | | |
| No Change or Decrease | 34 | 32.4 | 55.9 | 11.8 | 14.0 | 13.0 |
| <$5 Increase | 17 | 29.4 | 64.7 | 5.9 | 12.7 | 11.5 |
| $5.01-$10.00 Increase | 12 | 83.3 | 8.3 | 8.3 | 10.1 | 8.0 |
| >$10 Increase | 10 | 70.0 | 30.0 | 0.0 | 9.3 | 8.5 |
| **Change in Plan Premium 1/88-1/89[b]** | | | | | | |
| No Change or Decrease | 21 | 23.8 | 52.4 | 23.8 | 16.3 | 14.0 |
| <$5 Increase | 18 | 66.7 | 27.8 | 5.6 | 10.1 | 9.2 |

TABLE II.5 (continued)

| | Number of Plans | Disenrollment Ratios | | | Mean Disenrollment Ratio (percent) | Median Disenrollment Ratio (percent) |
|---|---|---|---|---|---|---|
| | | 0-10% | 10.1-20% | >20% | | |
| **Change in Plan Premium 1/88-1/89** (continued) | | | | | | |
| $5.01-$10.00 Increase | 11 | 54.6 | 45.5 | 0.0 | 10.3 | 8.6 |
| >$10 Increase | 19 | 47.4 | 52.6 | 0.0 | 11.2 | 10.5 |
| **Drugs Covered**[c] | | | | | | |
| Yes | 30 | 53.3 | 33.3 | 13.3 | 12.3 | 9.9 |
| No | 43 | 39.5 | 55.8 | 4.7 | 12.5 | 11.3 |
| **Plans in Area**[d] | | | | | | |
| 1 | 29 | 44.8 | 51.7 | 3.5 | 11.6 | 11.3 |
| 2 | 13 | 53.9 | 46.2 | 0.0 | 10.6 | 10.0 |
| 3 | 9 | 33.3 | 55.6 | 11.1 | 13.2 | 11.0 |
| >3 | 23 | 43.5 | 39.1 | 17.4 | 14.1 | 12.8 |
| **AAPCC**[d] (1989) | | | | | | |
| Top Quartile | 17 | 23.5 | 52.9 | 23.5 | 16.1 | 14.1 |
| 50th-75th Percentile | 16 | 43.8 | 43.8 | 12.5 | 13.3 | 11.5 |
| 25th-50th Percentile | 18 | 55.6 | 44.4 | 0.0 | 9.9 | 8.6 |
| Bottom Quartile | 14 | 57.1 | 42.9 | 0.0 | 10.8 | 9.6 |
| **Biased Selection Measure**[d] | | | | | | |
| Favorable | 38 | 42.1 | 50.0 | 7.9 | 12.8 | 11.2 |
| Neutral | 27 | 48.1 | 40.7 | 11.1 | 12.3 | 10.5 |
| **Replacement Measure**[e] | | | | | | |
| Poor Replacement | 14 | 14.3 | 64.3 | 21.4 | 16.1 | 15.0 |
| Equal Replacement | 19 | 26.3 | 57.9 | 15.8 | 14.9 | 12.8 |
| Moderate Growth | 22 | 72.7 | 27.3 | 0.0 | 9.4 | 8.6 |
| High Growth | 18 | 55.6 | 44.4 | 0.0 | 10.4 | 8.4 |

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NOTE: Due to the extreme variation in the disenrollment ratios for small plans, the tabulations are restricted to the 73 plans that had some enrollees as of December 1989 and had 1,000 or more enrollees at risk of disenrollment during the course of the year (i.e., those for which the sum of December enrollment and 1989 disenrollments exceeded 1,000). Also, only plans renewing their TEFRA risk contract for 1990 are included. Disenrollment was calculated from the May 1990 GHPO file.

[a] "Demo" includes all plans that held a Medicare risk contract at any time under a pre-TEFRA demonstration. "Cost" includes plans that had a Medicare cost contract prior to signing a TEFRA risk contract and were never a demonstration risk plan. HCPP plans are plans that held HCPP contracts (covering only Part B services on a risk basis) prior to joining the TEFRA program (and never held either a demonstration risk contract or a cost contract).

[b] Includes the 69 plans that were in operation in January 1988, 1989, and 1990 with enrollments in January 1989 and 1990. The total for this category in this table is 9 fewer than in Table II.4 because 9 plans had a sum of December enrollment and 1989 disenrollment less than 1,000 and thus, were excluded

[c] Prescription drug coverage is offered as part of the plan's basic benefit package.

[d] Number of plans in market area and quartile ranges were defined on the plans with over 1,000 enrollees in January 1989. Biased selection measures were included for plans operating from 1988 through 1989. Share Health Plan Minnesota operates in both the Minneapolis and Duluth market areas and was therefore counted twice in the "Number of Plans in Area" category. As a result, the total number of plans in the "Number of Plans in Area" category exceeds the total number of plans in the table by 1. The total number of plans in the AAPC and biased selection categories is 2 fewer than in Table II.4 because 2 plans had a sum of December enrollment and 1989 disenrollment less than 1,000 and thus, were excluded from the table.

[e] The replacement measure is the number of new enrollees joining a plan for every disenrollee. Poor replacement is defined as less than .75 new enrollees per disenrollee. Equal replacement is .75 to 1.25 new enrollees per disenrollee. Moderate growth is 1.25 to 2.0 new enrollees per disenrollee. High growth is more than 2 new enrollees for every disenrollee.

plans, and they lose some of their enrollees to each other, as enrollees switch plans. Disenrollment also is highest for plans with the smallest increase in premium.

IPAs have a higher median disenrollment ratio than staff or group model plans, which is somewhat surprising given that many IPA enrollees continued to have the same primary care physician they had before joining the HMO and thus are less likely to be dissatisfied with their care. Disenrollment decisions are likely to be affected more by factors directly related to perceived quality of care, access to care, and costs than by model type, but the relationship between model type and disenrollment exists, despite such expectations.

Plans that are for-profit have substantially higher disenrollment ratios than not-for-profits (12.5 versus 8.9 percent). This finding could be due to the fact that for-profit firms must devote some revenue to owners rather than to paying for services to beneficiaries. Thus, not-for-profits may be able to provide care that is of higher quality or otherwise more satisfactory to enrollees leading to lower disenrollment. However, there is no evidence that such differences in quality exist.

Disenrollment does not appear to be associated with plan size nor with the HMOs' tenure as a Medicare risk plan. Disenrollment also does not appear to vary with differences in the extent of favorable selection encountered. Characteristics of the area served by the HMO appear to have some association with its disenrollment ratio, but the relationship is not strong or revealing. Ratios vary by geographic region, but in no obvious fashion and for no discernable reason. The ratio appears to be unrelated to the number of Medicare risk plans in the area, but other evidence suggests that competition for enrollees may contribute to higher disenrollment rates in some areas with multiple risk plans. Disenrollment tends to be considerably higher in areas with higher AAPCCs, (which tend to have multiple HMOs), suggesting that plans may compete more vigorously for enrollees in these areas. Earlier work on this project (Langwell et al., 1988) indicates that about 30 percent of disenrollees in multiplan areas join another Medicare risk plan rather than return to traditional Medicare.

The disenrollment ratio yields some information on HMOs' ability to retain the enrollees they have attracted. However, the ratio does not capture HMOs' ability to replace the enrollees lost to disenrollment, and therefore may be a misleading measure of the attractiveness of the HMO to beneficiaries. For example, suppose two HMOs in one area compete for enrollees, and 1000 individuals in each plan disenroll to join the other plan. Both of these plans may have fairly high disenrollment ratios compared to an HMO in an area with no other plan. However, neither of the competing plans will have incurred a net loss in enrollment.

To account for this possible distortion we examine an additional measure of disenrollment behavior, which we refer to as the rate of replacement. This rate is simply the number of new enrollees added to the plan during the year divided by the number who left the plan. This rate, therefore, links the findings from the comparison of enrollment changes and the comparison of disenrollment ratios in a single measure. The rate of replacement is calculated as follows:

$$\frac{\text{December 1989 enrollment} + \text{1989 disenrollment} - \text{January 1989 enrollment}}{\text{1989 disenrollment.}}$$

The last category in Table II.5 displays the disenrollment ratio for four subgroups defined by the replacement measure--poor replacement (plans with a rate of under .75), equal replacement (those with a rate of .75 to 1.25), moderate growth (rates of 1.25 to 2.0), and high growth (rates exceeding 2.0). As one might expect, those plans that failed to fully replace the enrollees that left the HMO tended to be the ones with high disenrollment ratios. None of the plans with moderate or high growth had disenrollment ratios greater than 20 percent, and the majority had ratios below 10 percent. However, there was very little difference in median disenrollment ratios between plans with moderate growth and those with more rapid growth.

Table II.6 provides replacement ratios by plan characteristics. The median 1989 rate of replacement for the Medicare risk program was 1.3, meaning that for every beneficiary who disenrolled from the typical plan in 1989, 1.3 new beneficiaries enrolled. Comparing medians (since

## TABLE II.6

## DISTRIBUTION OF PLANS BY REPLACEMENT MEASURE

| | Number of Plans | Poor Replacement (<.75) | Even Replacement (0.75-1.25) | Moderate Replacement (1.25-2.0) | High Replacement (>2.0) | Mean | Median |
|---|---|---|---|---|---|---|---|
| **Total** | 87 | 21.8 | 25.3 | 25.3 | 27.6 | 2.1 | 1.3 |
| **Model Type** | | | | | | | |
| IPA | 40 | 25.0 | 25.0 | 20.0 | 30.0 | 2.1 | 1.3 |
| Group | 35 | 20.0 | 22.9 | 22.9 | 34.3 | 2.4 | 1.5 |
| Staff | 12 | 16.7 | 33.3 | 50.0 | 0.0 | 1.2 | 1.2 |
| **Tax Status** | | | | | | | |
| For-profit | 37 | 24.3 | 21.6 | 24.3 | 29.7 | 2.2 | 1.3 |
| Not-for-profit | 50 | 20.0 | 28.0 | 26.0 | 26.0 | 2.0 | 1.3 |
| **Chain Affiliated** | | | | | | | |
| Affiliated | 60 | 20.0 | 31.7 | 18.3 | 30.0 | 2.3 | 1.2 |
| Independent | 27 | 25.9 | 11.1 | 40.7 | 22.2 | 1.7 | 1.5 |
| **Region** | | | | | | | |
| Boston | 9 | 22.2 | 11.1 | 33.3 | 33.3 | 1.8 | 1.5 |
| New York | 8 | 25.0 | 37.5 | 12.5 | 25.0 | 1.5 | 1.7 |
| Philadelphia | 6 | 50.0 | 16.7 | 0.0 | 33.3 | 1.5 | 0.7 |
| Atlanta | 9 | 0.0 | 44.4 | 33.3 | 22.2 | 1.6 | 1.3 |
| Chicago | 17 | 11.8 | 47.1 | 17.7 | 23.5 | 2.5 | 1.1 |
| Dallas | 8 | 37.5 | 0.0 | 12.5 | 50.0 | 2.6 | 1.9 |
| Kansas City | 5 | 60.0 | 20.0 | 20.0 | 0.0 | 0.7 | 0.5 |
| Denver | 5 | 20.0 | 20.0 | 60.0 | 0.0 | 1.4 | 1.7 |
| San Francisco | 14 | 14.3 | 14.3 | 35.7 | 35.7 | 3.0 | 1.9 |
| Seattle | 6 | 16.7 | 16.7 | 33.3 | 33.3 | 2.7 | 1.6 |
| **Previous Medicare Experience** | | | | | | | |
| Demo | 23 | 26.1 | 43.5 | 26.1 | 4.4 | 1.1 | 1.1 |
| Cost | 10 | 20.0 | 40.0 | 30.0 | 10.0 | 1.3 | 1.1 |
| HCPP | 7 | 14.3 | 0.0 | 28.6 | 57.1 | 2.5 | 2.7 |
| No Experience | 47 | 21.3 | 17.0 | 23.4 | 38.3 | 2.7 | 1.5 |

TABLE II.6 (continued)

| | Number of Plans | Poor Replacement (<.75) | Even Replacement (0.75-1.25) | Moderate Replacement (1.25-2.0) | High Replacement (>2.0) | Mean | Median |
|---|---|---|---|---|---|---|---|
| **Year Began Enrolling Under TEFRA** | | | | | | | |
| 1985 | 36 | 27.8 | 30.6 | 36.1 | 5.6 | 1.2 | 1.1 |
| 1986 | 25 | 20.0 | 24.0 | 32.0 | 24.0 | 1.5 | 1.4 |
| 1987 | 15 | 20.0 | 20.0 | 0.0 | 60.0 | 2.4 | 2.7 |
| 1988 | 8 | 12.5 | 25.0 | 0.0 | 62.5 | 7.1 | 5.4 |
| 1989 | 2 | 0.0 | 0.0 | 50.0 | 50.0 | 1.8 | 1.8 |
| **Plan Size, 1/89** | | | | | | | |
| <1,000 | 16 | 31.3 | 18.8 | 0.0 | 50.0 | 3.8 | 1.6 |
| 1,000-5,000 | 28 | 35.7 | 17.9 | 17.9 | 28.6 | 1.9 | 1.2 |
| 5,001-10,000 | 20 | 15.0 | 45.0 | 25.0 | 15.0 | 1.4 | 1.1 |
| >10,000 | 23 | 4.4 | 21.7 | 52.2 | 21.7 | 1.7 | 1.5 |
| **Plan Premium, 1989** | | | | | | | |
| 0 | 13 | 7.7 | 23.1 | 30.8 | 38.5 | 2.3 | 1.9 |
| 1-20 | 12 | 25.0 | 25.0 | 8.3 | 41.7 | 1.9 | 1.2 |
| 21-30 | 12 | 16.7 | 25.0 | 16.7 | 41.7 | 2.7 | 1.6 |
| 31-40 | 17 | 23.5 | 17.7 | 29.4 | 29.4 | 3.3 | 1.4 |
| 41-50 | 13 | 30.8 | 23.1 | 30.8 | 15.4 | 1.4 | 1.1 |
| >50 | 20 | 25.0 | 35.0 | 30.0 | 10.0 | 1.2 | 1.2 |
| **Change in Plan Premium, 1/89- 1/90** | | | | | | | |
| No Change or Decrease | 39 | 12.8 | 35.9 | 23.1 | 28.2 | 1.9 | 1.3 |
| <$5 Increase | 20 | 45.0 | 20.0 | 20.0 | 15.0 | 1.9 | 0.8 |
| $5.01-$10.00 Increase | 13 | 15.4 | 7.7 | 46.2 | 30.8 | 2.1 | 1.8 |
| >$10 Increase | 15 | 20.0 | 20.0 | 20.0 | 40.0 | 2.8 | 1.7 |
| **Change in Plan Premium, 1/88-1/89[a]** | | | | | | | |
| No Change or Decrease | 24 | 12.5 | 20.8 | 20.8 | 45.8 | 2.1 | 1.9 |
| <$5 Increase | 20 | 20.0 | 25.0 | 30.0 | 25.0 | 1.8 | 1.4 |

TABLE II.6 (continued)

| | Number of Plans | Poor Replacement (<.75) | Even Replacement (0.75-1.25) | Moderate Replacement (1.25-2.0) | High Replacement (>2.0) | Mean | Median |
|---|---|---|---|---|---|---|---|
| **Change in Plan Premium, 1/88/89[a] (continued)** | | | | | | | |
| $5.01-$10.00 Increase | 13 | 23.1 | 38.5 | 15.4 | 23.1 | 1.9 | 1.1 |
| >$10 Increase | 21 | 33.3 | 23.8 | 38.1 | 4.8 | 1.1 | 1.2 |
| **Drugs Covered** | | | | | | | |
| Yes | 34 | 23.5 | 14.7 | 35.3 | 26.5 | 1.6 | 1.4 |
| No | 53 | 20.8 | 32.1 | 18.9 | 28.3 | 2.4 | 1.2 |
| **Plans in Market Area[b]** | | | | | | | |
| 1 | 29 | 17.2 | 24.1 | 27.6 | 31.0 | 1.8 | 1.4 |
| 2 | 13 | 15.4 | 30.8 | 23.1 | 30.8 | 2.5 | 1.5 |
| 3 | 9 | 33.3 | 22.2 | 44.4 | 0.0 | 1.2 | 1.1 |
| >3 | 23 | 17.4 | 30.4 | 30.4 | 21.7 | 1.5 | 1.4 |
| **AAPCC (1989)** | | | | | | | |
| Top Quartile | 17 | 11.8 | 41.2 | 17.7 | 29.4 | 1.5 | 1.1 |
| 50th-75th Quartile | 17 | 29.4 | 11.8 | 41.2 | 17.7 | 1.5 | 1.5 |
| 25th-50th Quartile | 18 | 16.7 | 27.8 | 27.8 | 27.8 | 2.0 | 1.3 |
| Bottom Quartile | 15 | 26.7 | 33.3 | 33.3 | 6.7 | 1.1 | 1.1 |
| **Biased Selection Measure[c]** | | | | | | | |
| Favorable | 39 | 15.4 | 35.9 | 30.8 | 18.0 | 1.4 | 1.2 |
| Neutral | 28 | 28.6 | 17.9 | 28.6 | 25.0 | 1.7 | 1.4 |

NOTE: Tabulations are limited to the 87 plans with enrollments in both January 1989 and January 1990, in order to exclude the plans with no January 1989 enrollment and active nonrenewing plans, for which the 1989 replacement ratio would be distorted.

[a] The 78 plans in this category are plans that were in operation in 1988, 1989, and 1990, with enrollment in 1989 and 1990.

[b] Humana Health Plan of Texas, in a two-plan market area, started after January 1989. Therefore, no replacement measure was available and total plans in this category is one less than in Table II.3. Number of plans in area and AAPCC quartiles were calculated for plans with enrollment in January 1989 exceeding 1,000.

[c] Biased selection measure of adjusted prior reimbursements are presented for those plans remaining in operation from 1988 to 1990.

means may be distorted by very high rates for small beginning plans) we see fairly modest differences for most subgroups. However, there are a few marked exceptions. Rates vary widely across regions, year began enrolling, plan size and premium.

The wide variation in median replacement ratios across regions can be illustrated by comparing four regions: Philadelphia, Dallas, Kansas City, and San Francisco. Philadelphia and Kansas City have medians indicating poor replacement (.7 and .5), while Dallas and San Francisco have medians nearing 2, the high replacement category. A comparison of these ratios to disenrollment ratio medians provides some interesting findings about the relative strength of plans. Whereas the disenrollment median for the Philadelphia region was about average for the program, these plans were unable to compensate for disenrollment by recruiting new members. On the other hand, plans in the San Francisco region had a high median disenrollment ratio of 12.5, but were still able to recruit almost 2 new beneficiaries for each disenrollee.

The median replacement measure is much higher for newer plans (excluding the two plans starting in 1989), than for those that began enrolling in the earlier years of the Medicare risk program. Plans that began in 1987 recruited about twice as many new enrollees for each disenrollee as plans beginning in 1985 or 1986. Furthermore, plans beginning in 1988 recruited 5.4 new enrollees per disenrollee, twice as many as plans starting one year earlier were able to recruit. This strong pattern suggests a very different interpretation than the disenrollment ratios, which indicate no link between plan tenure and disenrollment. Enrollees apparently leave newer and older plans at about the same rate but the newer plans tend to add new enrollees at a faster rate as they seek to become established.

HMOs with under 1,000 enrollees in January 1989 and those with over 10,000 enrollees had higher median replacement ratios than plans with 1,001 to 10,000 enrollees. Small plans grow by overcoming their somewhat higher than average disenrollment rates with even higher new

enrollments. Although large plans do not lose as large a percent of their enrollees as small plans, they do recruit almost as many new enrollees per disenrollee as the smallest plans.

Plans that do not charge enrollees a premium have the highest median replacement ratio and the highest median disenrollment ratio. Again, although they lose a significant number of enrollees, these plans attract twice as many enrollees with their zero premiums as they lose. Thus although the high disenrollment rate may be a source of concern to the HMO and to HCFA, the fact that these plans attract twice as many new entrants as they lose suggests that many of those who leave the plan may be doing so for reasons other than dissatisfaction. For instance, competition between plans may account for the high disenrollment and replacement ratios. Plans in which large numbers of enrollees are unhappy with the care they receive are likely to experience difficulty in attracting new beneficiaries as word spreads through the Medicare community. However, this process may take several years, especially in areas with a large Medicare population.

One area where the disenrollment and replacement measures provide consistent inferences is in the median ratios for changes in plan premiums between 1989 and 1990. The highest median disenrollment ratio occurs in plans that post the smallest premium increases for 1990. These plans with small premium increases also had lower replacement ratios. In fact, the median replacement ratio for the 20 plans that raised premiums by less than $5 failed to replace all of their disenrollees, adding only 8 new members for every 10 that leave the plan.

This anomalous result of plans with small changes in premiums experiencing smaller net gains in enrollment than plans that boost their premiums substantially is likely to be due to the time periods over which changes in premiums and enrollment are measured. The small changes in premium between January 1989 and January 1990 may well be a *reaction* to the lack of growth in enrollments. To investigate this, we examine the relationship between premium changes between January 1988 and January 1989 on net enrollments (replacement ratios) during 1989. This comparison (also presented in Table II.6) confirms our suspicions about the direction of causality between premium changes and

replacement ratio. Plans that held their premiums for 1989 to the same level as in 1988 (or decreased them) had much higher replacement ratios during 1989 than plans that increased their premiums. This result is much more consistent with expectations, since premium increases, other things being equal, will act to both dampen new enrollment and increase disenrollments.

## B. CHARACTERISTICS OF MEDICARE RISK PLANS

As the Medicare risk program matures, the characteristics of plans participating in the program may change. Below we examine some basic organizational characteristics and features of plans and note any changes over the last few years.

### 1. Organizational Characteristics by Year

One of the striking changes in plan characteristics over the past three years involves model type. As shown in Table II.7, although the percentage of IPA model plans in the program has remained near 50 percent over the past three years, IPAs as a group have been losing enrollment. The proportion of Medicare risk enrollment in IPAs has dropped by about 7 percent per year from over half the Medicare risk enrollment to close to one-third. On the other hand, the percentage of staff model plans in the program has remained around 15 percent, but these plans have increased their share of enrollment each year. The proportion of enrollment in staff model plans more than doubled between 1989 and 1990 alone, increasing from 15.8 percent to 36 percent.

For-profit plans experienced not only an increase in their percentage of plans in the program, but they increased their enrollment share by an even greater percentage. Between 1989 and 1990, the proportion of for-profit plans increased by about 10 percentage points and the proportion of enrollment in for-profit plans grew by 18 points. For the first time, the majority of Medicare risk plans are for-profit HMOs.

For the first time in the past few years, plans in the Chicago region have a less than proportional share of enrollment in the program. There has been a decline in the proportion of plans in this

TABLE II.7

## ORGANIZATIONAL CHARACTERISTICS OF TEFRA HMOS/CMPS OVER TIME

| | Number of Plans | | | Percent of Plans | | | Percent of Enrollments | | |
|---|---|---|---|---|---|---|---|---|---|
| Characteristics | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| **Plan Type** | | | | | | | | | |
| IPA | 51 | 48 | 67 | 54.3 | 47.5 | 54.9 | 37.2 | 45.3 | 52.8 |
| Group | 29 | 36 | 36 | 30.9 | 35.6 | 29.5 | 26.9 | 38.9 | 35.0 |
| Staff | 14 | 17 | 19 | 14.9 | 16.8 | 15.6 | 36.0 | 15.8 | 12.0 |
| **Tax Status** | | | | | | | | | |
| For-Profit | 49 | 42 | 46 | 52.1 | 41.6 | 38.8 | 58.1 | 40.8 | 40.1 |
| Not For-Profit | 45 | 59 | 75 | 47.9 | 58.4 | 62.0 | 41.9 | 59.2 | 59.6 |
| **Chain Affiliation** | | | | | | | | | |
| Affiliated | 69 | 69 | 79 | 73.4 | 68.3 | 64.8 | 79.8 | 78.0 | 56.5 |
| Independent | 25 | 32 | 43 | 26.6 | 31.7 | 35.3 | 20.2 | 22.0 | 43.5 |
| **Region** | | | | | | | | | |
| Boston | 9 | 11 | 16 | 9.6 | 10.9 | 13.1 | 4.1 | 5.0 | 6.5 |
| New York | 9 | 11 | 12 | 9.6 | 10.9 | 9.8 | 5.7 | 5.4 | 4.2 |
| Philadelphia | 6 | 7 | 8 | 6.4 | 6.9 | 6.6 | 1.7 | 1.9 | 2.4 |
| Atlanta | 9 | 9 | 11 | 9.6 | 8.9 | 9.0 | 19.3 | 18.7 | 19.2 |
| Chicago | 17 | 21 | 31 | 18.1 | 20.8 | 25.4 | 15.8 | 21.0 | 27.9 |
| Dallas | 9 | 9 | 10 | 9.6 | 8.9 | 8.2 | 2.7 | 1.8 | 1.8 |
| Kansas City | 7 | 6 | 8 | 7.5 | 5.9 | 6.6 | 1.4 | 1.4 | 1.6 |
| Denver | 8 | 5 | 5 | 8.5 | 5.0 | 4.1 | 3.2 | 3.1 | 2.8 |
| San Francisco | 14 | 16 | 17 | 14.9 | 15.8 | 13.9 | 36.4 | 32.8 | 29.6 |
| Seattle | 6 | 6 | 4 | 6.4 | 5.9 | 3.3 | 9.8 | 9.0 | 4.1 |
| **Previous Medicare[a]** | | | | | | | | | |
| Demo | 20 | 28 | 29 | 21.3 | 27.7 | 23.8 | 35.9 | 50.6 | 46.2 |
| Cost | 9 | 14 | 14 | 9.6 | 13.9 | 11.5 | 15.6 | 13.9 | 14.1 |
| HCPP | 8 | 8 | 8 | 8.5 | 7.9 | 6.6 | 25.5 | 16.2 | 13.1 |
| Other | 6 | 0 | 0 | 6.4 | 0.0 | 0.0 | 2.1 | 0.0 | 0.9 |
| No experience | 51 | 51 | 71 | 54.3 | 50.5 | 58.2 | 21.0 | 19.3 | 26.6 |

TABLE II.7 (continued)

| | Number of Plans | | | Percent of Plans | | | Percent of Enrollments | | |
|---|---|---|---|---|---|---|---|---|---|
| Characteristics | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| **Year Began Enrolling Under TEFRA** | | | | | | | | | |
| 1985 | 36 | 43 | 50 | 38.3 | 43.0 | 41.0 | 63.4 | 63.4 | 64.1 |
| 1986 | 26 | 31 | 54 | 27.7 | 31.0 | 44.3 | 16.1 | 19.4 | 28.9 |
| 1987 | 15 | 15 | 16 | 16.0 | 15.0 | 13.1 | 14.4 | 12.4 | 6.7 |
| 1988 | 12 | 9 | 2 | 12.8 | 9.0 | 1.6 | 1.6 | 1.0 | 0.3 |
| 1989 | 2 | 2 | | 2.1 | 2.0 | | 3.8 | 3.8 | |
| 1990 | 3 | | | 3.2 | | | 0.7 | | |
| **Total Plans with Enrollments** | 94 | 101 | 122 | | | | | | |

NOTE: Data for 1988 through 1990 were drawn from the January OPHC Monthly Medicare Prepaid Plan Report and reflect the program experience as of January of that year for plans reporting enrollment greater than zero. Data on some characteristics are missing for some plans in some years.

[a] "Demo" includes all plans that held a Medicare risk contract at any time under a pre-TEFRA demonstration. "Cost" includes plans that had a Medicare cost contract prior to signing a TEFRA risk contract and were never a demonstration risk plan. HCPP plans are plans that held HCPP contracts (covering only Part B services on a risk basis) prior to joining the TEFRA program (and never held either a demonstration risk contract or a cost contract). "Other" plans are plans that held DCG or risk contracts prior to their present TEFRA risk contract (and never held a demonstration, cost, or HCPP contract).

region over the past three years, from over 25 percent in 1988 to about 18 percent in 1990. However, in 1990 the proportion of program enrollment in these plans dropped to below 16 percent.

Over the past two years, plans with demonstration experience lost a considerable proportion of enrollment, while plans with HCPP experience increased their proportion of enrollment. The percentage of plans with Medicare demonstration experience dropped only by about 6 percent between 1989 and 1990, but these plans lost over twice that percentage in share of total enrollment. Plans with demonstration experience accounted for half of total enrollment in 1989; by 1990, these plans had only 36 percent of program enrollment. Meanwhile, HCPPs increased their percentage of enrollment by almost 10 percent, accounting for over 25 percent of plan enrollment in 1990.

The number of plans enrolling beneficiaries under the Medicare risk program starting in 1985 dropped as a percentage of plans in the program between 1989 and 1990, but were able to maintain a large percent of total program enrollment. The percent of plans beginning in 1985 dropped from 43 percent to 38 percent. However, these plans still control the same 63 percent of program enrollment that they have controlled since 1988. This finding lends further support to prior findings that the early entrants to the Medicare risk program that survive tend to be those that are large and still growing substantially.

### 2. Benefits Premiums and Copayments Per Year

In the First Annual Report we examined the changes in benefits offered and premiums changed since the program's inception in 1985. Here we focus on the changes over the past two years.

Although one might expect that by now the mix of benefits and premiums should be relatively well-established and should not vary dramatically when the set of participating plans does not change appreciably, that is not entirely the case. The median premium changed only slightly in 1990 (increased by $2 per month), but the proportion of plans offering certain benefits has changed greatly. Table II.8 contains the comparisons.

TABLE II.8

DISTRIBUTION OF PLANS BY BENEFITS, PREMIUMS, COPAYMENTS[a]

| | 1990 | | 1989 | | 1988 | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| **High Option** | | | | | | |
| Offered | 9 | 9.6 | 9 | 8.9 | 11 | 9.0 |
| Not Offered | 85 | 90.4 | 92 | 91.1 | 110 | 90.2 |
| **Plans Offering Coverage for:**[b] | | | | | | |
| Prescription Drugs | 32 | 34.0 | 38 | 37.6 | 42 | 34.4 |
| Dental Care | 21 | 22.3 | 7 | 16.8 | 20 | 16.4 |
| Outpatient Mental Health[c] | 100 | 100.0 | 27 | 26.7 | 74 | 60.7 |
| Preventive Care | 67 | 71.3 | 82 | 81.2 | 121 | 99.2 |
| Eye Care | 80 | 85.1 | 45 | 44.6 | 44 | 36.1 |
| Ear Care | 48 | 51.1 | 25 | 24.8 | 67 | 54.9 |
| **Premiums ($/month)** | | | | | | |
| 0 | 16 | 17.0 | 13 | 12.9 | 15. | 12.3 |
| 1-20 | 8 | 8.5 | 12 | 11.9 | 19 | 15.6 |
| 21-30 | 8 | 8.5 | 13 | 12.9 | 23 | 18.9 |
| 31-40 | 20 | 21.3 | 19 | 18.8 | 30 | 24.6 |
| 41-50 | 18 | 19.2 | 21 | 20.8 | 18 | 14.8 |
| >50 | 24 | 25.5 | 23 | 22.8 | 17 | 13.9 |
| Median Premium | $39.14 | | $37.25 | | $33.88 | |
| **Member Copayments Required for Some Services** | | | | | | |
| Yes | 75 | 79.8 | 86 | 85.1 | 93 | 76.2 |
| No | 19 | 20.2 | 15 | 14.9 | 29 | 23.8 |
| **Flexible Benefit Package Offered** | 4 | 4.3 | NA | NA | NA | NA |

[a] Data on plans reporting enrollment greater than zero were compiled from the first OPHC Monthly Status Reports containing the new premiums and benefits for the new calendar year: March 1988 (1988), February 1989 (1989), April 1990 (1990).

[b] Coverage offered as part of plan's basic benefit package.

[c] Due to provisions in the Medicare Catastrophic Coverage Act, all HMOs were required to cover outpatient mental health services in 1990.

The small increase in median premium charged (about 5 percent) is remarkable, given the generally rapid rise in health care costs and insurance premiums nationally. Furthermore, even the distribution of premiums has changed in an unexpected way--the number of plans charging zero premiums has actually increased slightly over last year, despite the fact that costs and premiums are rising generally (over one-fourth charge over $50 per month).

In examining these results, it is useful to bear in mind that 87 of the 94 plans in 1990 were also active in 1989. Thus, only 7 of the plans in this table are new in 1990, and the 1989 results include data from only 14 HMOs that are no longer participating in 1990. Differences between the two years, therefore, will reflect primarily changes made by the continuing plans rather than differences in the set of plans that participate.

The largest change since 1989 is in the proportion of plans offering outpatient mental health, which increased from 27 percent to 100 percent. This change, however, is due to the requirement that for calendar year 1990 only, the basic Medicare benefit coverage mandated for Medicare risk plans must meet some of the provisions of the Medicare Catastrophic Health Care Act (MCCA), passed by Congress during 1988. Although the MCCA was repealed late in 1989, HCFA had already calculated the AAPCC payment rate for 1990 according to the provisions of the MCCA, thus requiring Medicare risk plans to cover the benefits in the MCCA for the year. The extended benefits of the MCCA that risk plans are required to cover during 1990 are outpatient mental health care and pap smears.

The sharpest rise in the percentage of plans voluntarily offering a benefit was for eye exams and eyeglasses. According to the OPHC data, only 45 percent offered this benefit as part of the basic benefit package in 1989 compared to over 85 percent in 1990. The proportion offering ear care (hearing tests, hearing aids) also increased substantially from 1989 levels, to approach the extent of coverage offered in 1988. Approximately the same percentage of plans offer high option benefit packages to beneficiaries in 1990 as have in the two prior years. A slightly greater percentage of

plans offer dental care as part of the basic benefit package in 1990 than did in prior years. However, only 71 percent of plans offer preventative care as part of the basic benefit package in 1990, compared to 81 percent in 1989 and nearly 100 percent in 1988.

The proportion of plans charging copayments remained in the 75 to 85 percent range observed for the preceding two years, and the proportion of plans offering a high option alternative remained at under 10 percent. In 1990 four plans in the Medicare risk program began offering a new "flexible benefit package", however. Flexible benefit packages are ones in which the HMO offers additional benefits (such as prescription drugs or eyeglass coverage) and/or lower premiums to a subset of enrollees defined by (1) the enrollee's county of residence or (2) whether the enrollee agrees to limit their use of providers. In the second case, a plan would offer members a choice between a delivery system with a large number of primary care physicians (such as an IPA) and a delivery system based on a smaller group of physicians over whom the HMO exercises more control. If members choose to limit their choice of physicians to the HMO's preferred group of doctors, then they would be eligible for the additional benefits and/or reduced premiums. The flexible benefit package concept would seem to be attractive to plans that have trouble attracting enrollees in certain areas or plans that seek to increase their degree of control over utilization. The four plans offering flexible benefit packages are located in the Chicago, Kansas City and Denver regions.

### 3. Market Area Characteristics (1989-1990)

In characterizing changes in Medicare risk plans it is also useful to examine changes in market area factors that could affect their financial experience. Two such factors are the number of TEFRA competitors that HMOs face and the AAPCC payment they receive.

The proportion of established plans located in areas with no other Medicare risk plans increased substantially between 1989 and 1990, from about one-fourth to nearly 40 percent. This increase was in large part due to contract nonrenewals in areas with multiple plans, rather than to new plans

entering in areas where no plan previously existed. The number and proportion of plans in areas with two, three, or more than three HMOs all decreased (see Table II.9).

These shifts left a noticeably smaller proportion of enrollees in areas with more than three plans. Only 61 percent of current enrollees are in areas with at least four Medicare risk plans, compared to the 71 percent of enrollees in such areas in 1989. The proportion of enrollees in areas with only one Medicare HMO to consider joining increased from 10 to 16 percent. Thus, beneficiaries had fewer alternatives to chose from in 1990 than in previous years.

The AAPCCs faced by HMOs also changed somewhat, with the median increasing substantially (12 percent) from $289 in 1989 to $325 in 1990. The proportion of enrollees in plans with area AAPCCs in the top quartile changed only marginally from 44.3 to 47.8, but still was nearly twice the proportion of plans in this category. This reflects the much larger average size of plans in such areas.

## TABLE II.9

## MARKET AREA CHARACTERISTICS OF ESTABLISHED MEDICARE RISK PLANS[a]

| | Number of Plans | | Percent of Plans | | Percent of Enrollments[c] | |
|---|---|---|---|---|---|---|
| | 1990 | 1989 | 1990 | 1989 | 1990 | 1989 |
| **Number of Plans in Area[b]** | | | | | | |
| 1 | 29 | 22 | 39.2 | 27.5 | 15.9 | 9.9 |
| 2 | 13 | 18 | 17.6 | 22.5 | 13.4 | 9.4 |
| 3 | 9 | 12 | 12.2 | 15.0 | 9.5 | 10.1 |
| >3 | 23 | 28 | 31.1 | 35.0 | 61.3 | 70.7 |
| Total | 74 | 80 | 100.0 | 100.0 | 100.0 | 100.0 |
| **AAPCC[d]** | | | | | | |
| Top Quartile | 18 | 19 | 24.3 | 23.8 | 47.8 | 44.3 |
| 50th - 75th Percentile | 19 | 20 | 25.7 | 25.0 | 22.6 | 22.6 |
| 25th - 50th Percentile | 18 | 21 | 24.3 | 26.3 | 21.1 | 23.0 |
| Bottom Quartile | 19 | 20 | 25.7 | 25.0 | 8.4 | 10.1 |
| Total | 74 | 80 | 100.0 | 100.0 | 100.0 | 100.0 |

[a] Plans where December enrollment plus disenrollment during the previous year exceeded 1,000 are considered established plans.

[b] Data compiled from the December 1988 and May 1990 GHPO files for 1989 and 1990, respectively.

[c] Data compiled from the January 1989 and January 1990 OPHC Monthly Status Reports.

[d] The AAPCC rate used was that of the county from which the HMO drew a plurality of its enrollment, based on the December 1988 GHPO file for 1989 and on the May 1990 GHPO file for 1990. Quartiles do not contain exactly 25 percent of the plans due to multiple plans having the same AAPCC payment at the quartiles boundaries, and to the total number of plans not being divisible by 4.

contracts for 1988, HMOs that competed with these plans in the same service area, and plans continuing in the risk program.

Tompkins and Pomeranz found financial loss to be a necessary but not sufficient criteria for risk contract nonrenewal. Plans not renewing Medicare contracts for 1988 reported considerable financial losses ranging from $400,000 to $10,000,000 during 1987. Almost all plans indicated a willingness to allow a minor amount of cross-subsidization from the commercial to the Medicare business. In addition, none of the plans stipulated that the Medicare product had to be profitable on its own; the program merely needed to break-even financially. Tompkins and Pomeranz posit that the competitive value of serving the aged and the experience gained from managing the health care of this population compensated for the lack of profitability of the product. However, persistent losses from the Medicare product that threatened the viability of the commercial product line were clearly unacceptable to plans. Persistent financial loss was the factor that precipitated contract nonrenewal in the Tompkins and Pomeranz study. Within the sample of 15 HMOs that were interviewed, either the HMOs themselves were at great financial risk, or the physicians who provided the services incurred losses that led them to discontinue their association with the Medicare plan.

In general, plans indicated that unreasonably low AAPCC payment rates caused their financial losses. Plans determined this underpayment by comparing increases in the plan's ACR calculation to the AAPCC increase per year. Reasons for inadequate AAPCC rates were proposed by several plans; they involved flaws in the AAPCC methodology, market area factors, and political factors.

Plans had several concerns about the reliability of the AAPCC methodology. In general, plans were suspicious that HCFA was attempting to shift costs to plans through unreasonably low AAPCC rates. Another concern was that HCFA might not be tracking claims accurately to the county of permanent residence for those beneficiaries who travelled during parts of the year. Consequently, AAPCC rates may have been higher in typically warm climates like Florida and California due to the out-of-area emergency care provided to travelling beneficiaries whose HMOs bore the cost of

# III. WHY PLANS DO NOT RENEW THEIR MEDICARE RISK CONTRACTS

During the past three years, a large fraction of plans in the program have not renewed their Medicare risk contracts. At least 33 plans discontinued risk contracting each year since 1987. According to OPHC Medicare Prepaid Plan Reports, 21 percent of the plans with risk contracts in December 1987 did not renew for the next year. That percentage rose to 25 percent in 1988 and to 30 percent in 1989. In addition, new plans are not entering the program at a rate to compensate for such losses. As mentioned previously, the number of Medicare risk contracts in January 1990 (96) was lower than at any point since the first full year of the program (1986). However, the decline in the number of *active* plans (those with some enrollment) is much less dramatic, since many of the nonrenewing plans never become operational.

This chapter examines the experiences of plans under the risk program and reasons for contract nonrenewal to determine if nonrenewal is linked to certain plan characteristics, experiences, or program policies. First, we summarize prior research on Medicare risk contract nonrenewal. Next, we present the number and proportions of HMOs that discontinued Medicare risk contracting during the past three years for all HMOs and for groups of HMOs defined by their characteristics, benefits, and premiums. We then describe the survey of nonrenewing plans and the results of telephone interviews with representatives of these plans.

## A. PRIOR RESEARCH ON MEDICARE RISK CONTRACT NONRENEWAL

In their report, "HMOs That Did Not Renew Their TEFRA Contracts for 1988," Tompkins and Pomeranz (1988) discussed the financial performance of 15 nonrenewing plans, the significance of factors affecting the plans' financial performance and nonrenewal, and the events occurring after the plans did not renew their contracts. Tompkins and Pomeranz then offered recommendations for the future of the Medicare risk program. The data used for the Tompkins and Pomeranz report was collected during a group meeting and in telephone interviews with HMOs that did not renew risk

contracts for 1988, HMOs that competed with these plans in the same service area, and plans continuing in the risk program.

Tompkins and Pomeranz found financial loss to be a necessary but not sufficient criteria for risk contract nonrenewal. Plans not renewing Medicare contracts for 1988 reported considerable financial losses ranging from $400,000 to $10,000,000 during 1987. Almost all plans indicated a willingness to allow a minor amount of cross-subsidization from the commercial to the Medicare business. In addition, none of the plans stipulated that the Medicare product had to be profitable on its own; the program merely needed to break-even financially. Tompkins and Pomeranz posit that the competitive value of serving the aged and the experience gained from managing the health care of this population compensated for the lack of profitability of the product. However, persistent losses from the Medicare product that threatened the viability of the commercial product line were clearly unacceptable to plans. Persistent financial loss was the factor that precipitated contract nonrenewal in the Tompkins and Pomeranz study. Within the sample of 15 HMOs that were interviewed, either the HMOs themselves were at great financial risk, or the physicians who provided the services incurred losses that led them to discontinue their association with the Medicare plan.

In general, plans indicated that unreasonably low AAPCC payment rates caused their financial losses. Plans determined this underpayment by comparing increases in the plan's ACR calculation to the AAPCC increase per year. Reasons for inadequate AAPCC rates were proposed by several plans; they involved flaws in the AAPCC methodology, market area factors, and political factors.

Plans had several concerns about the reliability of the AAPCC methodology. In general, plans were suspicious that HCFA was attempting to shift costs to plans through unreasonably low AAPCC rates. Another concern was that HCFA might not be tracking claims accurately to the county of permanent residence for those beneficiaries who travelled during parts of the year. Consequently, AAPCC rates may have been higher in typically warm climates like Florida and California due to the out-of-area emergency care provided to travelling beneficiaries whose HMOs bore the cost of

treatment. Several plans also questioned the validity of HCFA's Prospective Payment System (PPS) adjustment to the AAPCC. The lack of any increase in the AAPCCs of several plans between 1986 and 1987 made these plans particularly sensitive to the validity of the PPS adjustment. Finally, the time lag for data to be used for the development of county-specific AAPCC rates was suspected to underestimate the cost of care provided to beneficiaries in some areas. A lagged database, it was argued, does not reflect geographic variations in the distribution of newer, expensive medical technologies.

Market area conditions also contributed to plans' skepticism toward the AAPCC methodology in the Tompkins and Pomeranz study. Areas in which a relatively small proportion of beneficiaries had medigap policies were likely to have low Medicare utilization and hence, low AAPCC rates. However, Tompkins and Pomeranz concluded that if these beneficiaries joined the HMO, the lower out-of-pocket costs they faced would result in an increased use of services. In addition, AAPCC rates understated the true cost of care provided, to the extent that providers did not "accept assignment" and billed beneficiaries for the full balance of their charges.

Plans also reported politics as a reason for low AAPCC payments. One plan reported that on meeting with OMB officials, the administration appeared to be solely concerned with reductions of the federal deficit and had no regard for the adequacy of the AAPCC payment. In addition, after enduring Gramm-Rudman budget cuts (that were often later restored), many plans viewed HCFA as an unreliable business partner.

The lack of adequate utilization management systems was noted as a cause of financial loss by a number of nonrenewing plans. One reason for plans not being able to control utilization expenses was that contracts with providers were not as beneficial to the plan as they needed to be. For example, plans in areas with few providers (such as Healthway in Massachusetts) or plans dealing with oligopolistic providers (such as Minnesota plans) lacked the competitive pressures that would have spurred better HMO negotiations. Also, model types that depended on contracts with outside

providers (providers who were not staff physicians) who did not conform to managed care practices tended to have utilization management problems. (Data from the organizational characteristics case study report (Nelson, et al., 1989) also supported this finding. Hospital days per 1,000 members, normalized by the hospital use rate per 1,000 beneficiaries in the local FFS sector, were almost 14 percent higher for plans where physicians practiced independently than for plans where physicians practiced as a group).

HMOs suggested several ways in which utilization could have been better controlled. Among the reasons given were better provider and beneficiary education programs, the use of gatekeepers, increasing the availability of skilled nursing facility beds, and recruiting new physicians to substitute for local physicians. Although HMOs in the study had higher utilization than they expected, these HMOs had considerably lower hospital days per thousand member-months than local fee-for-service rates.

The effects of plan nonrenewal on beneficiaries, competitors, and nonrenewing plans themselves also were documented by the Tompkins and Pomeranz report. Members of these plans were forced to either find alternative coverage or have their benefits limited to services covered by Medicare. Plans with significant numbers of retiree groups primarily offered Medicare wrap-around coverage to their Medicare risk enrollees. Other plans needed state insurance commissioners to put pressure on Blue Cross/Blue Shield to offer medigap coverage to their members. The members of several plans had the option of switching to another HMO in the same market area. Competitors faced "attacks" of telephone calls and inquiries from switchers and from concerned enrollees from their own plan regarding whether the competitor, too, would decline to renew its contract. One plan complained that the lack of correspondence and coordination between the nonrenewing plan, HCFA and the competitor led to aggravating problems and poor publicity for the competing plan that remained in the risk program. The effect of contract nonrenewal on the plans themselves varied.

Some plans faced adverse publicity, others dealt with "horrible over-reaction" to nonrenewal, and others had problems with providers attempting to "de-legitimize" the plan.

The recommendations of Tompkins and Pomeranz covered a broad area of needs. Further studies of the reasons for financial losses among risk contractors could include cost accounting studies and investigation of the possibility of adverse risk selection. The authors proposed the development of an industry-wide database to facilitate studies and substantiate industry claims, such as inadequate AAPCC payments and adverse selection. It was also recommended that HCFA closely monitor the expansion of service areas or new contracts with regard to sufficient commercial enrollment base for each market area as opposed to the HMO as a whole. The authors also warn that the development of methods to determine the capitation rate to plans must move quickly in order that the alternative method be implemented in time to help the Medicare risk program. Alternate systems they suggest for consideration include HMO experience-based and competitive bidding systems, or blended systems in which HMO and fee-for-service costs together form the basis of payment. Finally, Tompkins and Pomeranz note that beneficiaries must be guaranteed access to coverage in the event of future plan nonrenewals. Regulations requiring HMOs to guarantee coverage through the end of medigap waiting periods were suggested.

## B. NONRENEWAL RATES OF HMOS GROUPED BY ENROLLMENT LEVELS AND OTHER PLAN CHARACTERISTICS

As Table III.1 shows, the nonrenewal of active plans for 1990 represents a precipitous drop from 1989 and 1988. Only five plans, or about 13 percent of nonrenewing plans, were active plans that nonrenewed for 1990. The nonrenewal of these five plans affected only 1.3 percent of the beneficiaries in the Medicare risk program. The 25 active plans not renewing in 1988 and 1989 comprised 64 and 76 percent of all nonrenewing plans and affected larger percentages of beneficiaries in the program (8 and 6.6 percent, respectively). However, overall nonrenewals of Medicare risk contracts has grown over the past three years, from about 20 percent in 1988 to almost 30 percent

## TABLE III.1

## STATUS OF NONRENEWING PLANS PER YEAR
1988-1990

| | Number of Plans | | | Percentage of All Nonrenewing Plans | | | Percentage of Total TEFRA Enrollment[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| Terminating Plans | | | | | | | | | |
| No Longer Serving Medicare | | | | | | | | | |
| Active[b] | 5 | 25 | 25 | 12.8 | 64.1 | 75.8 | 1.3 | 8.0 | 6.6 |
| Zero Enrollment | 26 | 8 | 5 | 66.7 | 20.5 | 15.2 | 0.0 | 0.0 | 0.0 |
| Liquidation | 1 | 1 | 0 | 2.6 | 2.6 | 0.0 | 0.1 | 0.3 | 0.0 |
| Merger | 0 | 2 | 3 | 0.0 | 5.1 | 9.1 | 0.0 | 1.7 | 0.9 |
| Conversion to Cost or HCPP | 7 | 3 | 0 | 18.0 | 7.7 | 0.0 | 5.6 | 0.8 | 0.0 |
| Total Plans Nonrenewing Contracts | 39 | 39 | 33 | 100.0 | 100.0 | 100.0 | 7.0 | 10.8 | 7.5 |
| Total Plans with Contracts as of December of Preceding Year | 131 | 154 | 161 | | | | | | |
| Plans Not Renewing as Percentage of Total Plans | 29.8 | 25.3 | 20.5 | | | | | | |
| Total Active Plans[b] | 101 | 122 | 134 | | | | | | |
| Active Risk Plans Not Renewing as Percentage of All Active Plans[c] | 12.9 | 25.4 | 20.9 | | | | | | |

[a] "Percentage of Enrollment" is terminating plans enrollment as of January in the last year of the Medicare risk contract, divided by total Medicare risk enrollment for this same month. Use of other months (e.g., December) could distort estimates because many of the members of nonrenewing plans may have already disenrolled before the end of the year.

[b] "Active" plans are those with some enrollment in January of their last year of operation. Thus, 5 of the 39 plans that did not renew for 1990 had enrollment in January of 1989.

[c] This statistic is the proportion of active plans (those with some enrollees in January of their last year of operation) that did not renew for the upcoming year. This includes all nonrenewing plans except those listed as zero enrollment (ie., those listed as active, liquidation, merger, or conversion). Thus, 13 of the 101 active plans in 1989 (13 percent) did not renew for 1990.

in 1990. About two-thirds of the nonrenewals for 1990 (all plans in the zero enrollment category) were due to the decision of Prucare plans to withdraw from the program without ever enrolling beneficiaries.

For 1990, risk contract nonrenewals involved mostly inactive plans and the active plans that nonrenewed were mostly conversions to other types of contracts rather than full termination from Medicare contracting. As a result, only about 1 percent of beneficiaries had to find other insurance for 1990, compared to 8.3 percent in 1989 and 6.6 percent in 1988.

Plan characteristics may affect the likelihood of contract nonrenewal in a number of ways. IPA model plans may not be well suited for Medicare risk contracting as group or staff models. Group and staff model plans often require beneficiaries to change physicians in order to join, which attracts beneficiaries who lack strong physician ties because they are usually healthy. On the other hand, IPAs believe that they attract beneficiaries who have strong ties to a participating physician; such beneficiaries on average are less healthy and use more services than the typical beneficiary. Affiliated plans may have an advantage over independent plans because the chain organization has greater resources at the plan's disposal and is able to absorb a greater degree of financial loss than independent plans. One risk plan recently proposed that plans in certain areas are successful because the politicians for those areas are more adept at fostering a climate where managed care can thrive (e.g., through less restrictive state regulations). While political effects may exist, politics is unlikely to have much effect on renewal of an HMO's Medicare risk contract, since regulations governing risk contracts are at the federal level. Very few HMOs that discontinue their Medicare contract go out of business entirely.

Table III.2, which is based on the number of signed risk contracts in the January preceding contract nonrenewal, shows that IPA model plans may not be as well-suited as other model types to Medicare risk contracting. From 1988 through 1990, IPAs were much more likely than group or staff model plans to not renew their contracts. About 40 percent of IPAs declined to renew in each of

TABLE III.2

NUMBER AND PROPORTION OF PLANS NOT RENEWING THEIR MEDICARE RISK CONTRACTS BY ORGANIZATIONAL CHARACTERISTICS: 1988-1990

| | Number of Nonrenewing Plans | | | Percentage of Plans With a Given Characteristics Not Renewing | | |
|---|---|---|---|---|---|---|
| Characteristics | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| **Total** | 38 | 37 | 29 | 29 | 28 | 20 |
| **Model** | | | | | | |
| IPA | 30 | 30 | 24 | 39 | 41 | 27 |
| Group | 3 | 4 | 2 | 8 | 11 | 6 |
| Staff | 5 | 3 | 3 | 28 | 15 | 13 |
| **Tax Status** | | | | | | |
| For profit | 30 | 13 | 16 | 43 | 24 | 26 |
| Not-for-profit | 8 | 24 | 13 | 13 | 31 | 15 |
| **Chain Affiliated** | | | | | | |
| Affiliated | 34 | 26 | 25 | 35 | 31 | 26 |
| Independent | 4 | 11 | 4 | 11 | 23 | 8 |
| **Region** | | | | | | |
| Boston | 4 | 6 | 1 | 31 | 35 | 6 |
| New York | 4 | 0 | 2 | 31 | 0 | 17 |
| Philadelphia | 4 | 3 | 0 | 40 | 30 | 0 |
| Atlanta | 8 | 4 | 4 | 44 | 29 | 27 |
| Chicago | 5 | 14 | 7 | 23 | 44 | 18 |
| Dallas | 7 | 1 | 5 | 44 | 10 | 38 |
| Kansas City | 1 | 2 | 6 | 14 | 25 | 43 |
| Denver | 1 | 3 | 1 | 10 | 43 | 14 |
| San Francisco | 4 | 3 | 3 | 22 | 18 | 16 |
| Seattle | 0 | 1 | 0 | 0 | 20 | 0 |
| **Previous Medicare Experience** | | | | | | |
| Demo | 5 | 3 | 7 | 18 | 10 | 21 |
| Cost | 4 | 1 | 3 | 29 | 7 | 16 |
| HCPP | 1 | 0 | 0 | 13 | 0 | 0 |
| None | 28 | 33 | 19 | 34 | 42 | 22 |

TABLE III.2 (continued)

| Characteristics | Number of Nonrenewing Plans | | | Percentage of Plans With a Given Characteristics Not Renewing | | |
|---|---|---|---|---|---|---|
| | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| **Year Contract Signed** | | | | | | |
| **TEFRA** | | | | | | |
| 1985 | 7 | 7 | 11 | 16 | 14 | 19 |
| 1986 | 4 | 21 | 15 | 13 | 39 | 21 |
| 1987 | 2 | 4 | 3 | 12 | 22 | 23 |
| 1988 | 17 | 5 | | 55 | 63 | |
| 1989 | 8 | | | 80 | | |
| **Enrollment** | | | | | | |
| Zero | 26 | 6 | 2 | 81 | 60 | 18 |
| 1-1,000 | 2 | 9 | 10 | 11 | 41 | 25 |
| 1,000-5,000 | 8 | 17 | 13 | 21 | 30 | 22 |
| 5,001-10,000 | 1 | 2 | 3 | 5 | 11 | 14 |
| >10,000 | 1 | 3 | 1 | 4 | 13 | 5 |

NOTE: The number of plans in this table is slightly lower than the number of plans in Table III.1 (1 fewer for 1990, 2 fewer for 1989, and 4 fewer for 1988). This discrepancy is due to limiting the calculations in this table to plans with signed contracts as of January of the year preceding the year for which nonrenewal is being examined. Thus, plans not appearing in the January 1989 OPHC Monthly Medicare Prepaid Plan Reports were excluded from the results on 1990 terminations. The effect of this exclusion is to eliminate from consideration all plans that held a contract for less than one year prior to the decision to nonrenew, since enrollment and other characteristics could not be defined for a comparable time period to that used for other plans.

the last two years, compared to about 10 percent for group model plans and 15 to 28 percent for staff model plans. The much lower rate of nonrenewal for group model plans suggests that this model type may have the optimal mix of financial incentives, control, and group cohesiveness to remain financially viable under the Medicare risk program (see Nelson, et al., 1990 for evidence on this).

The comparison of nonrenewal rates by plan characteristics shows that affiliated plans are consistently (by 8 to 24 percentage points) more likely than independent plans to discontinue their Medicare risk contracts. This finding contradicts the conventional wisdom that affiliated plans: (1) are likely to be more successful under the Medicare risk program because they have greater resources to draw upon, and (2) may be more willing to absorb initial losses for long-range goals. It appears that affiliated plans are actually less likely to tolerate program losses than independent plans.

The more experience a plan has in dealing with Medicare beneficiaries, the more likely the plan is to be prepared for the greater health care needs of Medicare beneficiaries and the greater administrative costs required to conduct business with the government. This expectation is reflected in the consistently higher nonrenewal rate for plans that lack prior Medicare contracting experience. Concomitantly, young plans and plans with small enrollment are more likely to drop their Medicare risk contracts. Over 40 percent of plans with under 1,000 enrollees terminated in each of the last two years, and 20 to 30 percent of plans with 1,000 to 5,000 enrollees declined to renew in each year since 1988. The proportion of larger plans not renewing has never exceeded 15 percent.

Nonrenewal is no more likely among plans in any one region than in any others on any consistent basis over the past three years. Each year, one or two regions may be more likely to have plans nonrenewing contracts than other regions. For instance, nearly half of the Chicago plans discontinued their contract for 1989, but only 23 percent did so for 1990. This pattern was exactly reversed in the Dallas region. Thus, there is little evidence from these results that there is a better climate for Medicare managed care in some regions of the country than in others, at least at this level of geographic aggregation.

## C. NONRENEWAL RATES AMONG PLANS GROUPED BY BENEFITS, PREMIUMS, AND COPAYMENTS

There are several theories about the effects of benefits, premiums, and copayments on the likelihood of plan nonrenewal. For instance, prescription drug coverage and more generous, high-option benefit packages were thought to be more likely to attract beneficiaries who were sicker than average and required a high level of services. As a result, a plan offering such benefits might experience adverse selection and financial loss and be forced to abandon their risk contact. On the other hand, requiring copayments for basic services is believed to decrease the use of health services for minor ailments, resulting in lower utilization of services. Table III.3, which presents the nonrenewal rates for plans grouped by benefits, premiums, and copayments, provides some insight into the validity of these theories.

The results in the table indicate that plans offering the most benefits and charging the lowest premium are least likely to terminate their participation in Medicare risk contracting. Plans offering coverage for prescription drugs were only half as likely to nonrenew as plans overall. Likewise, plans offering coverage for eye and ear care were somewhat less likely to drop their contract each year. As might be expected, plans that charge zero premium for basic benefits almost never drop out of the program. Other plan features were unrelated to the likelihood that it would not renew its contract. The results do not enable us to test the theories about determinants of plan success. The ability to offer generous benefits or low premiums is apparently a sign that the plan is in sound financial condition and therefore unlikely to terminate without first attempting the cost cutting and revenue-enhancing measures of restricting benefits and raising premiums. However, it is not clear from these results whether plans that terminated had in earlier years offered generous benefits or low premiums and had previously eliminated these features in an attempt to put the plan on a sound financial footing. Thus, plan features cannot be easily linked to the likelihood of plans deciding not to renew their risk contract.

TABLE III.3

NUMBER AND PERCENT OF PLANS NOT RENEWING, BY BENEFITS, PREMIUMS, AND COPAYMENTS, 1988-1990

| | Number of Nonrenewing Plans | | | Percentage of Plans Not Renewing | | |
|---|---|---|---|---|---|---|
| | 1990 | 1989 | 1988 | 1990 | 1989 | 1988 |
| Total | 38 | 37 | 29 | 29 | 28 | 20 |
| High Option | | | | | | |
| Offered | 2 | 3 | 8 | 22 | 21 | 26 |
| Not offered | 36 | 34 | 21 | 29 | 29 | 18 |
| Plans Offering Coverage for: | | | | | | |
| Prescription Drugs | 4 | 6 | 7 | 11 | 14 | 12 |
| Dental Care | 2 | 8 | 1 | 12 | 36 | 6 |
| Outpatient Mental Health | 3 | 25 | 10 | 10 | 32 | 24 |
| Preventive Care | 38 | 35 | 26 | 34 | 27 | 21 |
| Eye Exams | 9 | 25 | 14 | 12 | 25 | 16 |
| Ear exams | 3 | 21 | 8 | 7 | 23 | 16 |
| Premiums ($1 per month) | | | | | | |
| Zero | 0 | 1 | 0 | 0 | 7 | 0 |
| $1-$20 | 5 | 3 | 3 | 28 | 13 | 14 |
| $21-$30 | 22 | 7 | 10 | 65 | 29 | 24 |
| $31-$40 | 2 | 9 | 8 | 10 | 30 | 22 |
| $41-$50 | 6 | 6 | 8 | 24 | 32 | 29 |
| >$50 | 3 | 10 | 0 | 13 | 53 | 0 |
| Copayment for Basic Coverage | | | | | | |
| Yes | 35 | 29 | 20 | 30 | 29 | 19 |
| No | 3 | 8 | 9 | 20 | 26 | 24 |

NOTE: The number of plans in this table is slightly lower than the number of plans in Table III.1 (1 fewer for 1990, 2 fewer for 1989, and 4 fewer for 1988). This discrepancy is due to limiting the calculations in this table to plans with signed contracts as of January of the year preceding the year for which nonrenewal is being examined. Thus, plans not appearing in the January 1989 OPHC Monthly Medicare Prepaid Plan Reports were excluded from the results on 1990 terminations. The effect of this exclusion is to eliminate from consideration all plans that held a contract for less than one year prior to the decision to nonrenew, since enrollment and other characteristics could not be defined for a comparable time period to that used for other plans.

## D. INTERVIEWS OF NONRENEWING PLANS

The high rate of nonrenewals has continued since Tompkins and Pomeranz completed their 1988 study. As mentioned earlier, at least 25 percent of plans in operation at the beginning of 1988 and 1989 did not renew their Medicare risk contracts at the end of those years. As a result the number of plans with signed risk contracts reached a low point of 96 in January 1990. Concern over plans not renewing risk contracts led HCFA to authorize a case study under the TEFRA evaluation to re-examine the experiences of nonrenewing plans and the reasons for risk-contract nonrenewal. The re-examination of the experiences of plans and reasons for contract nonrenewal followed the methodology of the Tompkins and Pomeranz study, although due to budgetary constraints, the updated study is limited in depth. Below, sample selection, methodology, and results of the update of the Tompkins and Pomeranz study are presented.

### 1. Selection of Plans for Telephone Interview

Tompkins and Pomeranz limited their sample of plans to those with some enrollment during the year prior to nonrenewal, and plans that did not consolidate with other plans. After these two conditions were met, plans with larger enrollments were favored. Likewise, our sample consists of all plans that did not renew risk contracts for 1989 or 1990 and had at least some members during the year prior to nonrenewal. Plans that consolidated with other plans and those in which the entire HMO (not just the Medicare component) was liquidated were excluded from the sample. As a result, 27 plans, representing 35 contracts, were selected to receive telephone interviews. Those plans and their Medicare risk enrollment in the January preceding their decisions to nonrenew were:

1. Health Plus, 1,391 (Washington, D.C.)
2. Northwest National Life Health Network, 735 (St. Paul, MN)
3. Medical West, 6,244 (Hampshire County, MA)
4. HMO Minnesota, 1,514 (St. Paul, MN)

5. MedCenters, three contracts (Fargo, 559; Duluth, 7,780; and Moorehead, 2,359, MN)
6. HMO Kansas, two contracts (Topeka, 749, and Kaw Valley, 479, KS)
7. HMO Colorado, 416 (Colorado Springs, CO)
8. Group Health Cooperative-South Central Wisconsin, 238 (Madison, WI)
9. HMO Great Lakes, 3,400 (Oak Brook Terrace, IL)
10. Central Massachusetts, 4,852 (Worcester, MA)
11. Blue Cross/Blue Shield Michigan, three contracts (Greater Flint, 1,163; Grand Rapids, 1,092, and Southfield, 4,183, MI)
12. Key Health Plan, 11,853 (Indianapolis, IN)
13. Protective Health Plan/Peak Health Plan, 2,188 (San Diego, CA)
14. Capital Area Community Health Plan, three contracts (Latham, NY, 2,823; Pittsfield. 1,023, and Turner Falls, 576, MA)
15. Tufts Association Health Plan, 3,997 (Waltham, MA)
16. Sanus, 1,352 (Houston, TX)
17. Berkshire Health Plan, 1,581 (Pittsfield, MA)
18. Anchor Health Plan, 4,679 (Chicago, IL)
19. Hawaii Medical Service Association, 19,215 (Honolulu, HA)
20. HMO Health Ohio, two contracts total 4,091 (Cleveland, OH)
21. PHP Minnesota, 41,404 (Minneapolis, MN)
22. Montachusett Health Plan, 1,869 (Leominster, MA)
23. Greater Delaware Valley HMO, 98 (New Castle County and Concordville, PA)
24. Health Options Jacksonville, 2,948 (Jacksonville, FL)
25. Mc Auley Health Plan, 2,303 (Ann Arbor, MI)
26. Av-Med Health Plan, 883 (San Joquin Valley, CA)
27. Share, 199 (Austin, TX).

### 2. Plans Completing Telephone Interviews

Of the 35 contracts listed above, only one could not be contacted. Neither sources at OPHC nor directory assistance could locate a number with which to reach Share Austin. Attempts were also made to contact a spokesperson at Prudential headquarters. Although PruCare plans were excluded from the sample because they lacked enrollment during the year prior to contract nonrenewal, the 27 PruCare plans that left the Medicare risk program was a blow to the potential growth of the program. However, none of the executives who were involved with Medicare risk program decisions were willing to speak for Prudential due to the amount of time that had passed since the decision was made.

### 3. Interview Protocol

Telephone interviews followed a modified version of the Tompkins and Pomeranz protocol. Questions concerning risk contract conversion to cost or Health Care Prepayment Plan (HCPP) contracts, which cover Medicare ambulatory services, were added. All questions were open-ended, but many could be answered with simply a "yes or no" response (see Appendix A for protocol). Topics included: factors leading to contract nonrenewal or contract conversion; enrollment and utilization experiences; characteristics of the local market and market competition; characteristics of the Medicare product, and recommendations for the future of the Medicare risk program. The Tompkins and Pomeranz interviews averaged about two hours, whereas the protocol used for this report averaged about 20 minutes.

### 4. Respondents

Plan executives who were present during the plan's Medicare risk-contract and involved with the contract nonrenewal process were solicited as interview respondents. In some cases, the OPHC Washington office and regional OPHC offices provided the names of such plan executives. About half of the time, however, several referrals were needed to contact an appropriate person for the

interview. Once the contact was made, several respondents needed time to consult with other plan executives about plan experiences and recommendations before completing the interview. Some interviews were completed with responses from a combination of people, and respondents generally were willing to answer all appropriate questions. However, knowledgeable staff were not available to answer all questions in the protocol; thus, many questions have several "Unable to Answer" responses from plans.

## E. PLAN RESPONSES ON THEIR NONRENEWAL DECISIONS

Interviews were completed for 34 contract nonrenewals, as Table III.4 shows. As mentioned earlier, all questions were open-ended, which led to a wide variety of responses. The variety in responses led to difficulty in classification for table presentations; therefore, only the most easily collapsible responses are presented in Table III.4. Other responses will be included as appropriate in the discussions below.

### 1. Factors in the Decision Not to Renew the Risk Contract

Factors leading to the decision not to renew the risk contract varied widely, but fell into three broad categories. From the most common responses to least common responses the three categories were: (1) financial loss and faulty payment methodology, (2) problems with federal policy, regulation, or behavior, and (3) plan-based or competitive circumstances.

Financial loss was by far the most popular response as the reason for contract nonrenewal. Some plans elaborated and responded that a flawed AAPCC payment methodology, adverse selection, or the high administrative cost of the program was the source of the financial loss. One plan noted that the time lag for the inclusion of capital cost information in the payment rate and the county-level basis of the payment rate severely diluted the payment for new capital costs to the area that actually incurred the cost. More specifically, AAPCC rates fail to reflect the cost of large capital investment in the fee-for-service sector, such as new hospital facilities or high-technology centers, for

## TABLE III.4

## PLANS INTERVIEWED FOR THE NONRENEWING PLAN ANALYSIS
(Sample Size = 34)

| | Number of Plans | Percent of Plans |
|---|---|---|
| Year Nonrenewal Effective | | |
| 1989 | 26 | 76.5 |
| 1990 | 8 | 23.5 |
| Conversion to Other Medicare Contract | | |
| Yes | 9 | 26.5 |
| No | 25 | 73.5 |
| Categories of Factors in Contract Nonrenewal | | |
| Financial Loss and Poor Payment Methodology | 31 | 91.2 |
| Problems with HCFA, Federal Regulations, or Policies | 9 | 26.5 |
| Plan Based or Competitive Circumstances | 5 | 14.7 |
| Most Important Factor in Contract Nonrenewal | | |
| Financial Loss | 25 | 73.5 |
| Unreliable AAPCC | 3 | 8.9 |
| Lost Competitive Edge | 2 | 5.9 |
| Administrative Costs | 1 | 2.9 |
| Lost Providers | 1 | 2.9 |
| PRO Problems | 1 | 2.9 |
| Inexperienced Plan or Low Enrollment | 1 | 2.9 |
| Reason for Entering TEFRA Risk Contract | | |
| Business Growth | 28 | 82.4 |
| Social Benefit | 10 | 29.4 |
| Challenge to Physicians | 5 | 14.7 |
| Hopes of Opening a Social HMO | 1 | 2.9 |
| Unable to Answer | 3 | 8.9 |
| Utilization Experience | | |
| Higher than Projections | 27 | 79.4 |
| Even with Projections | 4 | 11.8 |
| Lower than Projections | 1 | 2.9 |
| Unable to Answer | 2 | 5.9 |
| Number of Competitors in Market Area | | |
| Zero | 14 | 41.2 |
| One | 11 | 32.4 |
| Two | 5 | 14.7 |
| Three or more | 4 | 11.7 |

TABLE III.4 (continued)

| | Number of Plans | Percent of Plans |
|---|---|---|
| Estimation of Competitors' Financial Performance | | |
| Losing Money | 10 | 50.0 |
| Breaking Even | 6 | 30.0 |
| Mixed | 2 | 10.0 |
| Unable to Answer | 2 | 10.0 |
| Comparison of Medigap Policy to HMO Membership | | |
| Medigap Worse | | |
| Higher Premium, Lower Benefits | 14 | 41.2 |
| Higher Premium, Same Benefits | 2 | 5.9 |
| Same Premium, Lower Benefits | 5 | 14.7 |
| Uncertain | | |
| Same Premium and Benefits | 5 | 14.7 |
| Lower Premium, Lower Benefits | 4 | 11.8 |
| Medigap Better | | |
| Lower premium; Same Benefits | 1 | 2.9 |
| Unable to Answer | 3 | 8.8 |
| Ability to Negotiate Favorable Hospital Rates | | |
| Unable | 8 | 23.5 |
| Usually Able | 20 | 58.8 |
| Sometimes Able | 4 | 11.7 |
| Able until State DRG's Implemented | 1 | 2.9 |
| Unable to Answer | 1 | 2.9 |
| Source of Pressure on Amount of Premium Plan Wished to Charge | | |
| ACR | 10 | 29.4 |
| Competition | 8 | 23.5 |
| No Pressure/Unable to Answer | 16 | 47.1 |
| Ease of Attracting Beneficiaries to Plan | | |
| No Trouble | 29 | 85.3 |
| Difficult | 4 | 11.8 |
| Unable to Answer | 1 | 2.9 |
| Plan Introduced or Altered Utilization Control Systems in Preparation for Medicare | | |
| Yes | 16 | 47.1 |
| No | 15 | 44.1 |
| Unable to Answer | 3 | 8.8 |

TABLE III.4 (continued)

| | Number of Plans | Percent of Plans |
|---|---|---|
| Are Enrollees Sicker than Nonenrollees | | |
| Yes | 16 | 47.1 |
| No | 14 | 41.2 |
| Unable to Answer | 4 | 11.8 |
| Provider Attitude Toward Risk Contract | | |
| Ambivalent | 11 | 32.4 |
| Opposed | 9 | 26.5 |
| Supported | 7 | 20.6 |
| Mixed support/Opposition | 6 | 17.6 |
| Unable to Answer | 1 | 2.9 |
| Problems Surfaced with Providers | | |
| Yes | 17 | 50.0 |
| No | 12 | 35.3 |
| Mixed | 3 | 8.8 |
| Unable to Answer | 2 | 5.9 |
| Would Plan Consider Another Risk Contract in the Future | | |
| Yes | 19 | 55.9 |
| No | 4 | 11.8 |
| Possibly | 11 | 32.4 |
| How Could HCFA Avoid Future Nonrenewals | | |
| Improve AAPCC Methodology | 25 | 73.5 |
| Raise Payment Level | 5 | 14.7 |
| Reimburse for Administrative Costs | 3 | 8.9 |
| Return to Contracting Prior to TEFRA | 3 | 8.9 |
| Risk-sharing or Stop-loss | 5 | 14.7 |
| Make TEFRA Appeal Process Equal to FFS | 5 | 14.7 |
| Eliminate Retroactive Coverage Changes | 5 | 14.7 |
| Change PRO Regulations | 6 | 17.7 |
| Develop Better Business Practices | 7 | 20.6 |
| Better Political Maneuvering | 1 | 2.9 |

NOTE: Multiple-responses are included in each category; thus, the number of plans in any response category may not total 34 and the percent of plans may not total 100 percent.

at least three years. According to this HMO, when the cost is finally included, the county-level basis of payment spreads the payment for the new costs over a much larger area than where the new costs were actually incurred.[1] Several plans speculated that raising the payment to 100 percent of the AAPCC would not have affected their decision to stop contracting because of the underlying flaws in the methodology.

A few plans also offered explanations for the high administrative costs they experienced. One plan explained that without an expensive one-on-one orientation with Medicare beneficiaries, utilization control problems develop. Other plans resented bearing the cost of participating in PRO reviews (e.g., pulling charts), especially when the reviews duplicated the highly-developed quality assurance and utilization review activities of the plan. Even for a plan that never had a history of problems with PRO reviews, the cost of the activities associated with PRO reviews was reportedly very high.

The second most popular response category for the reasons for contract nonrenewal included responses such as HCFA's poor business behavior, the enrollment regulation stipulating that no more than half of total HMO enrollment could be Medicare members, retroactive coverage "clarifications," and other HCFA regulations or policies. Several plans found HCFA unresponsive to questions, problems, and concerns. Administration of the Medicare risk program was considered bureaucratic, especially concerning the accretion and deletion process. A factor in one plan's failure to renew was the lack of clarity from HCFA regarding the plan's reimbursement for the next year. Several plans found fault with HCFA's mid-year clarification of hemodialysis and skilled nursing facility coverage. One plan was unable to secure separate risk and HCPP contracts from HCFA for adjacent service areas, and as a result, converted its risk contract to a HCPP. Another factor in one plan's contract nonrenewal was the unwillingness of HCFA to reimburse the plan for the cost of mandatory

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[1] Although hospitals can charge plans no more than DRG rates, plans can negotiate rates that are lower than DRG rates. A plan would bear a financial loss if its hospitals renegotiated contracts for DRG rates in response to the new costs, but the AAPCC delayed and spread the payment for those costs over a broader area.

contribution to a state insurance pool. Finally, one plan considered the PRO with which HCFA contracted for the plan's area to be "unethical and overly bureaucratic." The final category of factors in plans' decisions not to renew risk contracts includes plan politics, fear of marketing with a greatly increased premium, plan inexperience or low enrollment, and other plan circumstances. One respondent speculated that the Medicare risk program was a scapegoat for other plan problems because some undisclosed problems attributed to the risk program at the time of nonrenewal lingered long after the Medicare risk program ended. Some plans calculated premium increases that would have made the risk product much more expensive than medigap or other HMO policies available locally. Rather than endure the year with a costly product, the plans decided to cut their losses and end their contracts. A few plans attributed inexperience with calculation of the APR and ACR, or faulty actuarial analysis, as factors in financial loss and plan nonrenewal. One plan simply could not compete against the retirement packages of the two biggest employers in the area, the federal and state governments, and was unable to attract sufficient enrollment over which to spread the risk of high utilization.

### 2. Reasons For Entering a Medicare risk Contract

The reasons that plans gave for entering a risk contract indicated that most plans thought that risk-contracting would lead to business growth. Plans were viewing the decision to participate in TEFRA as a way to increase membership both directly by adding older members and indirectly by having a retirement option to offer potential commercial clients.

### 3. Utilization Experience

As expected, most plans that discontinued their risk contracts experienced higher than anticipated hospital utilization. Data from the National Data Reporting Requirement (NDRR) were available for 17 of the 34 contracts examined in the case study.[2] Inpatient hospital days per thousand

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[2] NDRR forms, submitted by plans to HCFA, contain data on costs, revenues, enrollments, member months, and hospital days.

Medicare members for the last year of the risk contract ranged from a very low 1,444 to a high of 3,212. Five plans had inpatient days per thousand higher than the national fee-for-service average for 1988 of 2,697. The median rate for the 17 plans was 2,261. Among nonrenewing plans, where a majority experienced higher than anticipated utilization, one might expect that few plans introduced or altered utilization control systems for Medicare enrollees. However, this was not the case. Plans were approximately split between those that introduced or altered existing utilization control systems for Medicare enrollees and those that did not. Measures that were cited as being introduced or improved for Medicare beneficiaries included hiring a full-time staff person to monitor only Medicare utilization, conducting orientation meetings, and introducing case management services. The remaining cause of higher than expected utilization may have been that about half of the plans felt that their enrollees required more health care than nonenrollees.

The way that plans came to the conclusion that they had encountered adverse selection varied widely. One plan calculated the average age of plan members to be 75, and considered this average age to represent adverse selection (apparently believing that the AAPCC adjustment for the age of enrollees is inadequate). A plan in Minnesota found that enrollees were drawn from farm communities where few people had health insurance before becoming eligible for Medicare. Once eligible for Medicare, many beneficiaries realized that the services they had needed for so long could be received for a much lower out-of-pocket cost if they joined an HMO. This plan claimed to have documented a higher use of services, such as cataract surgery, and knee and hip replacements, than in the nonenrollee population. Another plan explained that plans that do not accept new Medicare members due to limits in physical capacity (closed enrollment) evolve into plans with a preponderance of "old" members who use more services than younger members. One plan cited their association with a teaching hospital as a source of adverse selection, and another plan claiming to have experienced adverse selection attributed it to a particular staff person who was very active with groups in the area composed of patients with particular ailments. Several plans said that IPA-model plans

are at greater risk of adverse selection than other plans because their simultaneous presence in the fee-for-service sector attracts members who are already receiving services and thus, are less healthy than other beneficiaries.

### 4. Competitive Experience

Plans were generally able to attract enrollees, but felt pressured to keep the premium artificially low. Over 85 percent of nonrenewing plans reported having no trouble in attracting beneficiaries to the plan, although several plans were required to close enrollment due to capacity problems or to the requirement that no more than half of total HMO enrollment could be Medicare members. About one in four of the interviewed plans were pressured to decrease the premium charged to beneficiaries due to ACR constraints, competition with other HMOs, or competition with medigap policies. Half of the plans with competitors in their market areas estimated that their competition was losing money on the Medicare risk program as well. With regard to competition from medigap policies, only one plan claimed that it competed against medigap policies that offered a better deal for beneficiaries, i.e., the lower premiums with the same benefits, although nine plans reported premiums and benefit combinations for Medicare supplemental policies that were not markedly better or worse than that offered by the HMO.

### 5. Provider Relations

Over 40 percent of interviewed plans responded that providers were opposed to the risk contract at some time during the contract. Moreover, over half of the respondents reported that due to Medicare risk contracting, problems with providers surfaced.

### 6. The Future of Risk Contracting

Despite their unsatisfactory experience to date, only twelve percent of respondents reported that they would not consider Medicare risk contracting again. The suggestions offered by respondents for ways that HCFA could improve the program and avoid future nonrenewals fell into three general categories: (1) payment changes, (2) changes in business behavior, regulations and policies, and 3) political changes.

Suggestions regarding payment changes were again the most popular responses, with improving the AAPCC payment methodology at the top of the list. Almost 75 percent of the respondents mentioned improving the AAPCC methodology as a way to reduce future nonrenewals. Several plans suggested using a newer data base to calculate AAPCCs and alleviating large disparities in rates between contiguous counties. Use of experience rating instead of community rating to set rates, findings from the 1986 Brandeis report that proposed adjustments for health status (Ash, et al., 1986), accounting for HMO market penetration in market areas, and basing the AAPCC on areas according to factor prices were also suggested as ways to improve the methodology.

Surprisingly, raising the payment level in general was offered as a way to avoid future nonrenewals by only 15 percent of respondents. Another 15 percent suggested that sharing some risks with HCFA would reduce future nonrenewals. Reimbursement for administrative costs was the least often suggested measure to reduce future nonrenewals (only 9 percent suggested this). One plan suggested that risk contracts be negotiated in the way that some pre-TEFRA demonstration contracts were negotiated--individually with each HMO, producing unique contracts if necessary.

Over 20 percent of respondents indicated during the interview that they had bad business experiences with HCFA. One plan stated that it is the presumption of some OPHC staffers that HMOs intend to defraud the government. The respondent continued to say that in the case of IMC they were right, but the majority of HMOs are non-profit, community-based organizations providing

needed services.[3] HCFA was described as being dominated by personalities; whatever administration is in control determines the environment for managed care. Others described regional OPHC staff as helpful, but said federal staff were detached from the beneficiaries and operational processes. The terms "accretion and deletion" exemplified that assessment in the view of one respondent. One respondent was also angered by the lack of retroactive payment for accretion/deletion lags in their favor. Moreover, federal staff were reported to have made the transition from a risk contract to a cost contract cumbersome and confrontational; federal staff reportedly tried to block the transition for one plan at every step of the way. Inconsistent answers from HCFA regarding ACR instructions and open enrollment limits were also cited by respondents.

Respondents offered many suggestions on how HCFA could improve its business behavior. One respondent suggested that a HCFA/HMO committee be established to address early-on any unique program needs and issues (contractual, administrative, or regulatory) to enhance communication and trust between HCFA and the plans, fostering a better Medicare risk program. A "user-friendly" pre-packaged set of materials for plans to use in operations, administration and meeting regulatory requirements was also proposed. Stricter financial reporting requirements and more follow-up on warning signs in the reports would be helpful as well as quarterly site-visits, not to sanction, but to troubleshoot and offer support services to plans would help allay plan frustration and financial losses. It was also suggested that AAPCC payments to HMOs be exempt from unanticipated mid-year cuts currently required under the Gramm-Rudman Act.

Respondents also offered suggestions on how HCFA regulations and policies could be improved. Most suggestions involved changing PRO requirements. Respondents generally viewed PRO activities as duplication of internal quality assurance and utilization review activities for which they were not reimbursed. Instead, reviews should determine whether the plan enforces the quality assurance program in its Medicare risk contract.

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[3] Prior to 1990, the majority of plans in the Medicare risk program were not-for-profit. As of January 1990, 52 percent of risk plans were for profit.

Other suggestions on how HCFA could improve its policies included elimination of retrospective changes in benefits and mid-year coverage changes. Respondents also indicated that the reconsideration and appeals process should be the same for fee-for-service and HMO providers. Presently, Medicare risk contractors are denied any appeal mechanisms regarding AAPCC payment or service determinations, but fee-for-service providers have the right to appeal HCFA's payment or service determinations. In addition, whereas fee-for-service beneficiary appeals are heard by an Administrative Law Judge, HMO beneficiaries' appeals are transferred to HCFA for review. In reviewing enrollee appeals, HCFA reportedly uses the most current coverage guidelines instead of the guidelines that were in effect during the case in question. One plan also targeted the ACR calculation for termination.

A few unique suggestions were offered as ways to improve the Medicare risk program as well. One respondent suggested a limit on total payments to physicians who do not accept assignment for their Medicare patients in order for the HMO to be able to attract physicians at a favorable rate. Presently, physicians who do not accept assignment can charge beneficiaries the difference between Medicare reimbursement and their fee schedule. When the revenue that physicians make in this fee-for-service arrangement exceeds what HMO contracts offer there is no incentive for physicians to contract with plans. Another suggestion was to impose mandatory copays and deductibles in order to control overutilization by beneficiaries. Another respondent wanted the ability to disenroll members from the plan for abuse of the system.

The third category of ways in which HCFA could avoid future nonrenewals, according to the plans, involved politicians becoming more adept at fostering environments where managed care can thrive. One plan postulated that the four states with the most powerful politicians, California, Massachusetts, Florida and New York, will be the only states remaining with risk contracts before long. According to this respondent, other states suffer from low payment rates and strict regulations because their representatives do not choose or are not able to improve the environment for Medicare

risk contracting. However, payment rates are determined by actuarial formulas and it is unclear how politicians could alter federal or state regulations in a way that would be more beneficial to HMOs in their own state than to HMOs elsewhere.

### 7. Conversion to Cost or HCPP Contract

Conversion of risk contracts to cost or HCPP contracts is a relatively new phenomenon for the program; no plan had converted to these contracts in the Tompkins and Pomeranz study. Conversions of risk contracts to cost or HCPP contracts accounted for 25 percent of plans not renewing contracts for 1989 or 1990. The most common reasons given by plans for contract conversion in addition to financial loss under the risk program was that there was no disruption of services for Medicare beneficiaries and the plan wanted to maintain a Medicare product. Other reasons for contract conversion included the desire to maintain contracts with physicians and hospitals, or a return to the contract the plan had prior to TEFRA. The especially attractive features of HCPP contracts were that there is no risk for Part A (hospitalization) costs, premiums can be based on health factors, and 80 percent of the administrative costs and 100 percent of the marketing costs for Medicare enrollees are reimbursed.

## F. SUMMARY

Although nonrenewal of Medicare risk contracts continued to grow for the third straight year, the effect of nonrenewals in the Medicare risk program is less adverse for members. Only about 7 percent of enrollees were affected in 1990, as in the two preceding years, but unlike 1988 and 1989, nearly all of these enrollees were in HMOs that converted to cost or HCPP contracts rather than leaving the Medicare market entirely. As in the past, IPAs were more likely than plans of other model types to discontinue participation, as were plans that were smaller, younger, and had less Medicare experience.

As Tompkins and Pomeranz found in their 1988 study, financial loss is still the most important reason for risk contract nonrenewal, although a variety of subsidiary reasons are also reported. Two frequently cited reasons by recently nonrenewing plans were the unreliability of the AAPCC methodology and the administrative cost of the program. However, it should be emphasized that plans seemed to object more to the unpredictable nature and faults of the AAPCC rather than to the level; only 1 in 7 felt that increasing the payment rate in general was the solution.

Other problems with HCFA regulations, policies, or behavior were often cited by nonrenewing plans as also contributing to the decision not to renew the risk contract. Specific reasons in this category included problems with PRO, ACR and 50/50 regulations, unanticipated reductions in the percentage of the AAPCC paid by HCFA due to provisions of the Gramm-Rudman Act, and HCFA's poor business behavior. Several other plans reported their own internal problems as contributing to contract nonrenewal. Reasons under this category included unwillingness to charge premiums greater than the local premium for medigap coverage; the inability to maintain providers or to attract enrollees, and plan inexperience with ACR and APR calculations.

Respondents were quite forthcoming with suggestions on how HCFA could stem the rate of risk contract nonrenewal in the future. The most common suggestions for improvements to the AAPCC payment methodology included experience rating, using findings from the 1986 Brandeis report which analyzed alternatives to the AAPCC methodology, accounting for HMO market penetration, and basing the AAPCC not on counties, but on areas defined by the homogeneity of prices faced by HMOs for inputs (e.g., professional labor, rent, etc.). Suggestions on how HCFA's business behavior could be improved focused on providing plans with more individualized guidance and support, especially at the start of the risk contract, changing the appeals process and PRO regulations, eliminating retroactive changes in coverage requirements, and developing risk-sharing approaches.

## IV. FINANCIAL PERFORMANCE OF MEDICARE RISK HMOS

As the previous section makes clear, a considerable number of HMOs claim to find it difficult to remain in the Medicare risk program because of substantial financial losses on this business. Further evidence of financial difficulties even among continuing plans was obtained from earlier site visits to 41 plans 21 of which reported financial loss in the risk program. The HCFA-initiated proposal to increase payment to 100 percent of the AAPCC, while not necessarily indicative of financial losses, also suggests that plans are not faring will enough financially to produce the desired growth in either the number of plans or number of enrollees. Thus, two critical issues for the overall evaluation are: (1) what proportion of HMOs are breaking even or earning positive net revenues on their Medicare product, and (2) does profitability under Medicare vary with plan characteristics.

Unfortunately, data on HMOs' financial performance is readily available only for the entire HMO--neither costs nor revenues are disaggregated into the Medicare and non-Medicare lines of business on financial reports submitted to HCFA. Furthermore, most HMOs indicate that they are unable to disaggregate costs (see Carlton, et al., 1989). Thus, it is necessary to develop an algorithm to allocate total costs between the Medicare risk and commercial products of Medicare risk plans, based on member months and utilization statistics.

In this section we first review the sources of data that are available for examining profitability, then describe the very preliminary models we have developed to allocate costs and revenues. We then present some tentative estimates of HMO profitability under Medicare and describe remaining work to be conducted.

### A. DATA SOURCES

The principal source of data for this preliminary analysis is the NDRR (National Data Reporting Requirement) forms submitted to HCFA by all Medicare risk plans for fiscal year 1988. These forms, which have only recently been data entered by HCFA, contain data on HMOs' costs, by type of input

(salaries for professional medical staff, rent and depreciation, etc.); revenues by source (Medicare, premiums, etc.); enrollments and member months for Medicare and non-Medicare members; and hospital days for Medicare and non-Medicare. These data thus provide both the key dependent variables of interest (costs and revenues) and the variables used to disaggregate these costs and revenues (enrollments, member months, and hospital days for the two types of enrollees).

We have also relied to some extent on two other sources of data, a special nonpublished HCFA data file containing the various costs and utilization factors used by each HMO in developing its adjusted community rate (ACR), and the OPHC Monthly Status Reports issued by HCFA. The special ACR file contains plans' projections of their costs and revenues, which are supposed to be based on actual plan experience. The Monthly Status Reports contain data on the characteristics of each Medicare risk plan, such as Medicare enrollment, for-profit status, year began enrolling, and model type.

### 1. The Sample

Since all HMOs are required to submit NDRR forms at least annually (some must submit quarterly), it should be possible to include in our analysis all Medicare risk plans with some enrollment. In fact, however, many plans do not submit these forms on a timely basis. Furthermore, we exclude from the sample all HMOs with very small Medicare enrollments (under 1,000 as of December 1988). Of the 102 plans meeting this enrollment criterion, NDRR data were available for 81. These cases formed our basic data, although actual sample sizes were used somewhat smaller due to data problems encountered with some HMOs, as described in Section 3 below.

### 2. Analysis Variables

There are five types of variables used in our analysis: cost data by category, revenue data by category, enrollment data, utilization data, and data on plan characteristics.

### a. Cost Data

Our eventual plan is to disaggregate separately each category of costs into the Medicare and non-Medicare portions, since some types of costs (e.g., administrative) may vary more with member months while others (e.g., medical costs) may vary more with utilization. Allocating all costs jointly (i.e., using the same allocation algorithm for each category) may yield distorted estimates, since HMOs will differ on the share of total costs attributable to each category. For example, administrative costs range from 2.6 percent to 22.0 percent of total costs for HMOs in the sample.

For this preliminary analysis, however, we have restricted our attention to allocation of total costs. Once the data set has been refined and the basic form of the algorithm to be used has been determined, we will pursue the separate disaggregation of the four cost components: (1) inpatient expenses, (2) physician and related expenses, which include outside referrals and other professional services, (3) other medical expenses, which include all medical expenses not included in the first two categories, and (4) administrative expenses.

### b. Revenue Data

In order to assess the profitability of Medicare risk plans we also need to separate revenues into Medicare and non-Medicare portions. To calculate the average revenue received for Medicare members per Medicare member month, we summed these revenue figures: the monthly Medicare premium paid by beneficiaries (reported in the OPHC reports), the average HCFA payment per member month (Medicare Title XVIII payments divided by Medicare member months), and the Medicare portion of the copayment revenue divided by Medicare member months. The Medicare portion of total copayment revenues is assumed to be equal to Medicare members' intensity-adjusted share of total member months. This adjustment (inflating the number of Medicare member months by an estimated ratio of average costs for Medicare and non-Medicare members before calculating the Medicare proportion of member months) is needed since a disproportionately large share of the

copayment revenue may come from the Medicare enrollees, who tend to use more services than non-Medicare HMO members.

### c. Enrollment Data

Most HMO costs will vary with member months; thus, the allocation of costs between Medicare and non-Medicare enrollees must be based heavily on the proportion of member months attributable to Medicare enrollees. Data on the number of enrollees at year end and member months for the year for Medicare enrollees and for all enrollees are available from the NDRR reports.

Most plans reported their Medicare enrollment and member months, but these data were missing for a few plans. For these plans, we used the OPHC Monthly Status Reports to calculate the Medicare enrollment and member months for 1988.

### d. Utilization Data

Medical costs, which comprise the bulk of total HMO costs, depend on the level of service utilization among enrollees. Thus, in allocating costs we also rely on the number of hospital days per 1,000 enrollees for Medicare and non-Medicare members. Other utilization variables, such as the number of ambulatory encounters and length of hospital stay, also affect costs and could be used in the cost allocation algorithm but are not reliably reported by HMOs on the NDRR forms. Hence, although all medical costs are allocated, the allocation is based only on the ratio of Medicare to non-Medicare hospital days per 1,000.

### e. Plan Characteristics

Since costs and profitability may vary with plan characteristics, data were also collected on these factors for use in developing the allocation algorithm and forming subgroups of plans for analysis. The characteristics variables gathered for this analysis were model type, for-profit status, years under TEFRA, number of other HMOs in area, and chain affiliation. In addition, we obtained a measure of biased selection variable from the Final Report on biased selection.

### 3. Data Problems

The computerized NDRR data obtained from HCFA had numerous problems such as obvious errors in data entry, inconsistent data, and missing observations. Wherever possible, these data errors were corrected, but in most cases there was no readily available way to identify the correct value. Below, we discuss some of the main data problems encountered in creating the analysis file.

#### a. Missing Data

A number of HMOs were lost to the analysis because of missing data or key variables. In some cases the data were missing because an HMO that was required to file quarterly reports failed to file a report for one or more quarters of 1988. In other cases, data elements such as Medicare enrollment or hospital days were missing. Where possible, missing data were reconstructed; for example, for plans reporting no Medicare enrollment data we attempted to use the enrollment reported in the OPHC Monthly Status Reports. For some variables, however, it was difficult to tell whether a data item was truly missing, because all missing values are coded as zeros in the HCFA data rather than being assigned a specific code to indicate that the data were not available. Missing data was the primary reason for deleting observations from the analysis.

#### b. Unrealistic Values for Costs Per Member Month

Before conducting our analysis, we examined the data for unreasonable values of required variables. In particular we paid special attention to the average total cost reported by the plans. The average cost per member month for all enrollees in the plan ranged from $13.59 to $1,009.55 per month, with a mean of $150.55. Although it was difficult to determine the exact range of reasonable values for average costs, when we examined the data in detail, we noticed that most of the average costs were below $150 and greater than $70. Allowing for the possibility of actual outliers, we deleted the seven cases that had average costs higher than $300 or lower than $50 per member month. After deleting the outliers, the mean dropped to $85.83.

### c. Unrealistic Values for Other Variables

Among the other variables we checked for reasonableness, the most important one was hospital days per 1,000 member years. Non-Medicare hospital days ranged from 8 to 880 days per 1,000 members with a mean of 342 days, while the Medicare hospital days ranged from 1,019 to 3,269 days per thousand, with a mean of 1,974 days. After examining the data, we deleted three more outliers, based on reported non-Medicare hospital days. After deleting these observations, the non-Medicare hospital days ranged from 149 to 542 days per 1,000 members, with a mean of 344 days.

### d. Final Sample Size of Valid Observations

By combining the 73 plans that filed annual reports in 1988 with 9 plans that filed 4 quarterly reports, we originally started with 82 plans. The one plan with Medicare enrollment less than 1,000 was deleted from this group to reduce the sample to 81 observations. In addition, two plans were dropped because most of their data consisted of zeros; three plans were dropped because they had missing values for average total cost; seven plans were dropped because of their unreasonable values for average cost; and three plans were dropped as outliers in hospital days. Elimination of these cases reduced the sample size to 67 observations. The sample was further reduced to 61 observations on 1988 plans due to missing values for some of the key independent variables (typically, hospital days per 1,000 member years).

## B. MODELS TO ALLOCATE COSTS

To examine the profitability of Medicare risk plans we must separate the total costs into the portion attributable to serving Medicare and the proportion attributable to commercial (non-Medicare) clients. Because no reliable plan data exists to allocate actual costs between the two portions, we have developed a model to estimate the relationship between the average total cost and average Medicare and non-Medicare costs. Although there are many different ways to allocate costs between the Medicare and non-Medicare operations, we have pursued the average cost method

because it produced results that were more consistent and reasonable than other methods and because it is relatively straightforward. Below we briefly discuss the model that we estimated and some alternate methods that we did not adopt.

### 1. Allocation Models Based on Regression

The method we use to allocate total costs is based on the fact that average total cost per member month can be viewed as a weighted average of the unobserved average costs per member month for Medicare and non-Medicare enrollees, and then to specify a functional form for the relationship between these average costs and observable characteristics of the HMO. The parameters of the function can then be estimated using regression analysis and the estimated model can then be used to create estimates of average cost per Medicare member month for each HMO. Linking these results to the disaggregated revenue estimates then yields estimates of the profitability of each HMO in the sample.

The model is most easily exposited with the following simple equations:

$$\begin{aligned}
\begin{matrix}\text{average total cost per}\\ \text{member month (mm)}\end{matrix} &= \frac{\text{Total HMO cost}}{\text{Total mm}}\\
&= \begin{matrix}\text{Average cost per}\\ \text{Medicare mm}\end{matrix} \quad * \quad \frac{\text{Medicare mm}}{\text{Total mm}}\\
&+ \begin{matrix}\text{Average cost per}\\ \text{non-Medicare mm}\end{matrix} \quad * \quad 1 - \frac{\text{Medicare mm}}{\text{Total mm}},
\end{aligned}$$

that is,

$$\begin{aligned}
(1)\quad AC_T &= AC_M * MM_M/MM_T + AC_N\,(1 - MM_M/MMT)\\
&= AC_M * P_M + AC_N\,(1 - P_M),
\end{aligned}$$

where $P_M$ is the proportion of total member months contributed by Medicare enrollees. Note, however, that the variables of ultimate interest, the average cost per member month for Medicare

and non-Medicare clients ($AC_M$ and $AC_N$, respectively), are not observed. Thus, we assume first that $AC_N$ is equal to an algebraic function of observed characteristics:

$$(2)\quad AC_N = a_0 + a_1X_{N1} + a_2X_{N2} + a_3X_{N3} + e,$$

where the $X_{Ni}$'s are characteristics of the HMO associated with non-Medicare patients that are likely to affect average costs, such as non-Medicare member months and hospital days per 1,000 non-Medicare member years, the $a_i$'s are unobserved coefficients to be estimated, and the e is an error term. A similar expression could be (and was) developed for Medicare clients. However, we obtained more robust results from assuming that the average cost per Medicare member month ($AC_M$) is equal to the average cost per for non-Medicare enrollees times an unobserved "complexity" factor (f). The complexity factor is then assumed to be equal to a function of the ratio of Medicare to non-Medicare member months and Medicare to non-Medicare hospital use rates:

$$(3)\quad AC_M = AC_N * f$$

$$(4)\quad f = b_0 + b_1Z_1 + b_2Z_2 + b_3Z_3 + u,$$

where the $Z_i$'s are the ratios of Medicare to non-Medicare member months, this ratio squared, and hospital use rates, the $b_i$'s are parameters to be estimated, and u is an unobserved error term.

Combining equations (1) and (3) we get:

$$\begin{aligned}(5)\quad AC_T &= AC_M * P_M + AC_N * (1 - P_M) \\ &= AC_N * f * P_M + AC_N * (1 - P_M) \\ &= AC_N(1 + P_M(f - 1))\end{aligned}$$

Substituting in the expressions for $AC_N$ and f from equations (2) and (4) then we find

$$(6)\quad AC_T = (a_0 + a_1X_{N1} + a_2X_{N2} + a_3X_{N3} + e) * (1 + P_M(b_0 + b_1Z_1 + b_2Z_2 + b_3Z_3 + u - 1))$$

The 61 observations for which we have valid data were then used to estimate the $a_i$ and $b_i$ parameters in this expression, using a nonlinear regression program.[1]

Once the equation was estimated and the average Medicare and non-Medicare costs were calculated for each HMO, we rescaled these average costs so that the weighted average of the two would equal actual average total cost per member month, as reported in the NDRR data. This was done by multiplying the two estimated average costs by the ratio of actual to predicted average total costs per member month. Thus, we rely on the econometric model only to determine the proportion of costs that are associated with Medicare members rather than to predict the absolute level of these costs. The adjustment enables us to make full use of the available data on individual plans and makes the revenue and cost data more compatible.

### 2. Alternative Models

Although we used the nonlinear estimation of the weighted average costs equation to allocate costs, several other possible methods for allocating costs between the two portions were explored and many others could be pursued. Below we discuss some of these alternatives, which include using the total cost equation rather than an average cost specification, reconstructing detailed cost data by adopting a "bottoms-up" approach, creating an arbitrary allocation rule based on industry averages, and estimating an elaborate cost function. In most cases, the inadequacy of the data limits the feasibility of these methods.

A more traditional method of estimating cost equations is to regress total costs rather than average costs on output levels. Such models tend to have very large $R^2$ due to the wide range of the dependent variable and output levels, but may not be very robust. The desired average cost results would differ to the extent that the specification of the total cost model is different from the specification of the average cost model. In our preliminary estimation of total cost models, we specified total cost as a function of Medicare and non-Medicare member months, these member

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[1] We ignore the complex nature of the error structure in this estimation.

months squared, and hospital days per 1,000 Medicare and non-Medicare members. The average cost results derived from this model were neither consistent nor reasonable, so we adopted the average cost function.

An alternative method that could be used for allocating costs is to use the data reported by the HMOs in their ACR projections to build up an estimate rather than develop empirical algorithms. The ACR data reports the (projected) commercial cost of each benefit offered and a cost factor to determine the greater cost incurred for Medicare members due to their greater utilization rate (and perhaps more complex cases). However, these factors are merely estimates, based on past performance in most cases. Given HMO's previous responses to inquiries indicating that most do not maintain separate costs for their Medicare business, it is doubtful that they are able to determine these cost factors with any degree of accuracy, in most cases. This is evident also from the wide range of factors observed in the ACRs. Thus, we have chosen to rely on the NDRR data to construct our estimates of costs for Medicare members.

A third approach that was considered was to define relatively simple allocation rules to separate HMOs' costs into the Medicare and non-Medicare lines of business. Although such rules are easy to implement, they lack precision, are arbitrary, and ignore some of the information that is available. For example, allocating administrative costs between the two portions in a way that reflected actual demands on administrative resources by the Medicare and non-Medicare caseloads may be difficult, because much of the administrative costs may be fixed. A reasonable and simple set of rules that can be applied consistently across HMOs may not be available. The estimation method we adopted allows the data to determine the best "allocation rule".

A fourth approach that was considered was to use more elaborate cost functions than those described above. The economic literature contains many articles on "structural" cost function estimation and the implications of these functions for the underlying structure of production. This method is a generalized version of our approach and has many desirable properties. However,

flexible cost functions tend to have a large number of parameters to estimate, which requires a substantially larger sample size than what is available. Thus, the simplified cost function approach is the optimal approach for the current analysis, given the quantity and quality of data available at this time.

## C. PRELIMINARY RESULTS

A variety of models of the form described in the preceding section were estimated with the 61 available observations. The basic model that was used included non-Medicare member months, non-Medicare member months squared, and non-Medicare hospital days per 1,000 member years as the explanatory variables ($X_i$'s) in the expression for average cost per non-Medicare member month (equation 2), and included the ratio of Medicare to non-Medicare member months, this ratio squared, and the Medicare to non-Medicare ratio of hospital days per 1,000 member years as the explanatory variables ($Z_i$'s) in the expression for the complexity factor f (equation 4). Other variants included other plan characteristics such as model type and years in operation under TEFRA, but these variables had very small coefficients and an imperceptible effect on the results.

The fit of the model was quite reasonable but lead us to be cautious about interpreting the results. The $R^2$ of .59 for the regression is not a strictly valid measure of the percent of variance in average total cost that was explained by the model (because of the nonlinear nature of the equation), but suggests that the model does fit the data reasonably well. However, as Table IV.1 shows, the parameters are not estimated very precisely--the standard errors exceed the coefficient values for several of the variables and only one of the estimates (the constant term $a_0$) would be statistically significant if conventional hypothesis tests were performed. Nonetheless, the ratio of actual to predicted costs is very close to 1 on average (the mean ratio is 1.03 and the standard deviation is .1).

The estimated parameters were used to calculate the average cost per Medicare member month for each HMO as the product of the predicted average cost per non-Medicare member month and the estimated complexity factor for Medicare. The estimated average costs for Medicare and non-

## TABLE IV.1

## ESTIMATED PARAMETERS OF ALLOCATION ALGORITHM

| Variable | Parameter | Estimate | Standard Error |
|---|---|---|---|
| Average Cost of Non-Medicare Portion | | | |
| Constant | $a_o$ | 58.3 | 11.8 |
| Non-Medicare member years (in thousands) | $a_1$ | 0.0618 | 0.0528 |
| Non-Medicare member years (in thousands) squared | $a_2$ | -0.000147 | 0.000129 |
| Non-Medicare hospital days per 1,000 enrollees | $a_3$ | 0.0339 | 0.0269 |
| Cost Factor between Medicare and Non-Medicare Average Costs | | | |
| Constant | $b_o$ | 2.70 | 2.02 |
| Ratio of Medicare to non-Medicare member months | $b_1$ | 1.92 | 5.06 |
| Ratio of member months squared | $b_2$ | -3.08 | 4.66 |
| Ratio of Medicare to non-Medicare hospital days per 1,000 enrollees | $b_3$ | 0.0173 | 0.191 |
| R-squared = 0.59 | | | |

NOTE: Parameters were estimated using a nonlinear least square regression program, with average total cost per member month in 1988 as the dependent variable. The sample size was 61. See text for details.

Medicare were then adjusted by a correction factor (the ratio of actual to predicted average total costs) so that the weighted average of our estimated costs would yield the average total cost per member month calculated from the NDRR data.

The estimated average costs had quite reasonable ranges. Average Medicare costs ranged from \$159 to \$401 with a mean of \$280, and average non-Medicare costs ranged from \$39 to \$106 with a mean of \$73. The estimated cost adjustment factors were also reasonable, ranging from 2.95 to 4.57 with a mean of 3.83, although this mean is lower than the mean ratio (5.88) of hospital days per thousand Medicare member years to hospital days per 1,000 non-Medicare member years.

Although the numbers are in the desirable ranges, these results must be interpreted with caution since most of the estimated coefficients in the original model are not statistically significant. This does not mean that the calculated average costs are unreliable overall, but does suggest that the separation of the average costs may not be very accurate for any particular HMO.

### 1. Analysis of Overall Profitability

Table IV.2 presents for each HMO in the sample the overall revenues and costs incurred per member month, as reported in the ACR, and our estimates of costs and revenues per Medicare member month derived from the estimated algorithm and revenue allocation. The net revenue per member month as a percentage of total revenue per member month yields the profit margin.

Examining the *overall* profit rates reported by the 58 plans for which were able to estimate Medicare costs and revenues (3 of the plans used in the cost allocation did not have data on Medicare revenues), we find that profits and losses occurred in about the same proportion among the plans. Twenty-six (26) plans reported negative revenues, 24 reported positive revenues, and 8 reported breaking even. Profit margins ranged from a high of 11 percent of revenue to a low of -42 percent, with a median of 0. Net revenues ranged from \$12 to \$-26 per member month, with total profits (not shown) varying even more widely due to the wide range of plan enrollments (8,000 to 517,000 members).

## TABLE IV.2

## REVENUES RECEIVED AND EXPENSES INCURRED PER MEMBER MONTH FOR INDIVIDUAL PLANS: FOR MEDICARE MEMBERS ONLY AND OVERALL 1988

| | | Medicare Only (Estimates) | | | | | Overall (Actual) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plan Name | ID | Enrollment | Revenue | Cost | Net Revenue | Profit Margin | Enrollment | Revenue | Cost | Net Revenue | Profit Margin |
| Sample Medians | | 4,447 | 273 | 281 | -4 | -1.5 | 70,366 | 91 | 93 | 0 | 0 |
| Anchor Organization for Health Maintenance | 1434 | 4,509 | 232 | 288 | -56 | -24 | 131,847 | 81 | 84 | -3 | -4 |
| Av-Med Health Plan | 1016 | 8,412 | 307 | 293 | 14 | 5 | 92,696 | 106 | 102 | 4 | 3 |
| Bay State Health Care | 2206 | 4,310 | 293 | 342 | -49 | -17 | 260,249 | 98 | 94 | 3 | 3 |
| Blue Care Network - East Michigan | 2307 | 1,163 | 386 | 324 | 62 | 16 | 36,466 | 99 | 91 | 9 | 9 |
| Blue Care Network - Health Central | 9009 | 1,330 | 292 | 300 | -8 | -3 | 64,256 | 91 | 93 | -2 | -3 |
| Blue Care | 2314 | 14,163 | 222 | 244 | -22 | -10 | 49,282 | 112 | 99 | 12 | 11 |
| Central Massachusetts | 9025 | 4,852 | 334 | 321 | 13 | 4 | 101,782 | 90 | 92 | -2 | -2 |
| Comprecare Health Care Services | 609 | 4,385 | 267 | 276 | -9 | -3 | 181,499 | 71 | 77 | -6 | -9 |
| Equicor Health Plan | 1708 | 4,904 | 263 | 208 | 55 | 21 | 62,069 | 81 | 72 | 9 | 11 |
| Fallon Community Health Plan | 9001 | 13,988 | 268 | 294 | -26 | -10 | 94,850 | 102 | 101 | 1 | 1 |
| Family Health Plan Cooperative | 5205 | 3,978 | 256 | 271 | -15 | -6 | 66,155 | 87 | 85 | 2 | 2 |
| FHP Arizona | 303 | 10,172 | 280 | 288 | -8 | -3 | 31,960 | 146 | 148 | -3 | -2 |
| FHP New Mexico | 3204 | 7,628 | 183 | 192 | -9 | -5 | 19,818 | 111 | 115 | -4 | -4 |
| Florida Health Care Plan | 1035 | 8,286 | 191 | 195 | -4 | -2 | 19,962 | 109 | 102 | 7 | 6 |
| Good Health Plan of Oregon | 9047 | 3,891 | 287 | 233 | 54 | 19 | 41,163 | 84 | 84 | 0 | 0 |
| Group Health Plan | 9005 | 12,858 | 242 | 401 | -159 | -66 | 122,609 | 148 | 147 | 1 | 1 |
| GroupHealth Partnership | 3935 | 2,158 | 274 | 264 | 10 | 4 | 33,597 | 77 | 87 | -9 | -12 |
| Harvard Community Health Plan | 2206 | 8,486 | 341 | 350 | -9 | -3 | 276,763 | 102 | 101 | 0 | 0 |
| Health Alliance Plan of Michigan | 2312 | 7,876 | 163 | 281 | -118 | -73 | 391,877 | 87 | 86 | 0 | 1 |
| Health Care Plan (The) | 3351 | 2,523 | 190 | 225 | -35 | -19 | 63,418 | 73 | 70 | 2 | 3 |
| Health Maintenance of Indiana | 1505 | 11,853 | 270 | 371 | -101 | -38 | 143,430 | 85 | 111 | -26 | -30 |
| Health Options | 1026 | 12,298 | 314 | 312 | 2 | 1 | 71,667 | 111 | 112 | -1 | -1 |
| HealthChicago | 1411 | 10,854 | 348 | 321 | 27 | 8 | 73,743 | 96 | 105 | -9 | -9 |
| HealthPlus | 2103 | 1,571 | 319 | 293 | 26 | 8 | 96,692 | 75 | 71 | 4 | 5 |
| Heritage Health Plan of So. Florida | 1013 | 3,431 | 329 | 299 | 30 | 9 | 25,868 | 149 | 151 | -2 | -1 |
| HMO Great Lakes | 1409 | 3,400 | 164 | 160 | 4 | 2 | 51,325 | 44 | 46 | -3 | -6 |
| HMO Kansas | 1701 | 1,255 | 238 | 256 | -18 | -7 | 7,842 | 102 | 101 | 1 | 1 |
| HMO Minnesota | 2418 | 3,569 | 249 | 248 | 1 | 0 | 91,030 | 78 | 81 | -3 | -4 |
| Humana Health Plan of Texas | 4504 | 2,441 | 268 | 280 | -13 | -5 | 86,952 | 74 | 76 | -2 | -3 |
| Inter Valley Health Plan | 545 | 5,367 | 281 | 289 | -7 | -3 | 28,222 | 111 | 111 | 0 | 0 |
| Kaiser Foundation Health Plan of North Carolina | 3401 | 1,190 | 122 | 190 | -68 | -56 | 69,748 | 37 | 52 | -16 | -42 |
| Kaiser Foundation Health Plan of the Northwest | 9003 | 27,001 | 245 | 282 | -37 | -15 | 339,493 | 92 | 95 | -2 | -2 |
| Kaiser Foundation Health Plan of Texas | 4530 | 1,007 | 185 | 319 | -134 | -73 | 69,695 | 79 | 97 | -18 | -23 |
| Kaiser Foundation Health Plan | 1230 | 8,367 | 220 | 265 | -45 | -21 | 162,060 | 84 | 87 | -3 | -4 |

TABLE IV.2 (continued)

| Plan Name | ID | Medicare Only (Estimates) | | | | | Overall (Actual) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Enrollment | Revenue | Cost | Net Revenue | Profit Margin | Enrollment | Revenue | Cost | Net Revenue | Profit Margin |
| Lahey Clinic (BC-BS Health Maintenance Plan) | 2211 | 1,333 | 354 | 333 | 21 | 6 | 26,430 | 103 | 103 | 0 | 0 |
| M.D. IPA | 2132 | 1,383 | 356 | 282 | 74 | 21 | 102,802 | 76 | 74 | 2 | 3 |
| Maxicare Health Plans of the Midwest | 9028 | 7,503 | 341 | 264 | 77 | 23 | 101,864 | 80 | 80 | 0 | 0 |
| MedCenters Health Care | 9004 | 12,513 | 265 | 259 | 6 | 2 | 281,620 | 82 | 81 | 0 | 1 |
| Medical West Community Health Plan | 2216 | 5,708 | 293 | 297 | -4 | -1 | 70,838 | 93 | 95 | -2 | -3 |
| Michael Reese Health Plan | 1406 | 13,887 | 279 | 342 | -63 | -22 | 173,106 | 110 | 111 | -1 | -1 |
| Montachusett Health Plan | 2210 | 1,869 | 299 | 337 | -38 | -13 | 10,821 | 120 | 127 | -7 | -6 |
| National Medical Enterprises | 519 | 883 | 273 | 263 | 10 | 4 | 17,048 | 85 | 87 | -2 | -3 |
| Omnicare/The HMO | 3111 | 2,740 | 301 | 246 | 55 | 18 | 19,290 | 83 | 88 | -5 | -6 |
| PacifiCare of California | 543 | 66,106 | 262 | 288 | -25 | -9 | 147,096 | 116 | 110 | 6 | 5 |
| PacifiCare of Oregon II | 3805 | 9,540 | 235 | 214 | 22 | 9 | 24,672 | 141 | 137 | 4 | 3 |
| PCA Health Plans | 9037 | 1,771 | 303 | 332 | -29 | -10 | 17,778 | 100 | 104 | -4 | -4 |
| Peak Health Plan of California | 527 | 2,188 | 300 | 301 | -1 | 0 | 50,533 | 86 | 88 | -3 | -3 |
| Physicians Health Plan of Minnesota | 2430 | 57,909 | 239 | 249 | -10 | -4 | 304,162 | 94 | 94 | 0 | 0 |
| Prudential Health Care Plan | 4511 | 1,111 | 276 | 240 | 36 | 13 | 152,036 | 78 | 68 | 10 | 12 |
| Rhode Island Group Health Association | 4131 | 4,275 | 232 | 310 | -78 | -34 | 91,129 | 94 | 92 | 1 | 1 |
| Share Health Plan | 9006 | 43,649 | 247 | 245 | 1 | 0 | 147,475 | 110 | 110 | 0 | 0 |
| Share Health Plan of Illinois | 9045 | 21,353 | 289 | 262 | 27 | 9 | 60,552 | 156 | 154 | 2 | 1 |
| Share Health Plan of Iowa | 1601 | 2,890 | 250 | 241 | 8 | 3 | 34,306 | 78 | 76 | 2 | 2 |
| Share Health Plan of Nebraska | 2802 | 3,796 | 256 | 251 | 5 | 2 | 30,104 | 91 | 89 | 2 | 2 |
| Total Health HMO | 3313 | 796 | 286 | 259 | 27 | 9 | 26,323 | 85 | 89 | -4 | -4 |
| Tufts Associated HMO | 2205 | 3,997 | 355 | 349 | 6 | 2 | 113,440 | 96 | 96 | 0 | 0 |
| US Health Care Systems of Pennsylvania | 3931 | 15,071 | 315 | 270 | 45 | 14 | 517,005 | 74 | 72 | 2 | 3 |
| Watts Health Foundation/United Health Plan | 9016 | 13,131 | 310 | 332 | -23 | -7 | 47,006 | 157 | 150 | 8 | 5 |

The components of profits also varied widely across plans. Revenues ranged from $37 to $156 per member month with a median of $91.50; costs ranged from $52 to $154 (median $93.50). These wide ranges arise from differences in the types of commercial clients served by the HMOs, the prevailing input prices and use patterns in different areas, and the proportion of members who are Medicare beneficiaries as well as differences in financial performance. The proportion of plan members who were Medicare risk enrollees varied from about 1 percent to about 40 percent.

Estimates of plan financial performance on their Medicare line of business, obtained from our algorithm, varied much more widely than the plans' overall financial statistics, as might be expected. Costs and revenues were both much higher for Medicare members, with costs ranging from $160 to $401 per member month and revenues varying from $122 to $386 per month.[2]

As with the overall results, about half of the plans earned profits on their Medicare business (the median profit margin was -1.5 percent), but the range of net revenues was much wider for the Medicare operations than for the plan as a whole. Twenty-seven (27) of the 58 plans were estimated to have earned profits on Medicare, and profit margins varied from 23 percent to -73 percent of revenues.

Contrary to expectations, plans that earned a profit overall were only slightly more likely to earn a profit on their Medicare business than plans that lost money overall. The distribution of cases by estimated Medicare and overall profit margins was as follows:

| | | Overall | | | |
|---|---|---|---|---|---|
| | | Profit | Loss | Breakeven | Total |
| Medicare | Profit | 16 | 12 | 3 | 31 |
| | Loss | 10 | 12 | 5 | 27 |
| | Total | 26 | 24 | 8 | 58 |

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[2] Average revenues are not directly comparable to AAPCC rates since the revenues include premiums, copayments and interest, and the average AAPCC payment received per beneficiary is typically substantially below published AAPCC rates, due to average risk factors being less than 1.0.

Thus, it was often the case, according to our estimates, that plans losing money on Medicare were able to earn positive net revenues overall. This is consistent with comments of some nonrenewing plans that they were willing to absorb modest losses on Medicare, provided that it did not endanger their overall financial performance. However, it also appears to be the case that half of the plans that lost money overall were able to earn positive net revenues on their Medicare business.

Given the imprecision of the allocation algorithm, the estimates of net revenues on Medicare may not be very accurate for a particular HMO, but should give a reasonably accurate estimate of financial performance under the Medicare risk program for groups of HMOs. To investigate how financial performance under the Medicare risk program and overall performance varies with plan characteristics we categorized each HMO as either earning a profit, breaking even, or losing money on their Medicare enrollees. We further take account of the imprecision of our plan-specific estimates by defining the break-even category broadly: all plans with estimated profit margins of between +5 and -5 percent are classified as breaking even, and only those with estimated rates outside this interval are considered to be earning a profit or loss.

With this grosser definition of profitability we find plans to be approximately evenly distributed between making a profit, incurring a loss, or breaking even on their Medicare members. Only one in four plans were profitable under Medicare by this definition. Applying the same definition to overall plan performance we find 12 percent of plans earning profits, 16 percent had losses, and 72 percent broke even. This definition is too broad for assessing plans' overall financial performance, since these measures were reported by the plans rather than estimated. However, they were included in Table IV.3 for comparison.

The results, displayed in Table IV.3, show a few patterns consistent with expectations, but in a number of cases the findings are contrary to expectations. As might be expected, given the substantial risk of incurring extremely high cost, plans offering a prescription drug benefit were less

## TABLE IV.3

## PROFITABILITY OF PLANS BY PLAN CHARACTERISTICS

| | | Medicare Profit Margin | | | Total Profit Margin | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Loss (<-5%) | Break Even | Profit (>5%) | Loss (<-5%) | Break Even | Profit (>5%) |
| Summary | | | | | | | |
| Percent of Plans | 100 | 34.5 % | 39.7 % | 25.9 % | 15.5 % | 72.4 % | 12.1 % |
| (Number of Plans) | (58) | (20) | (23) | (15) | (9) | (42) | (7) |
| Premium Per Month | | | | | | | |
| Low (<$20) | 20 | 25.0 | 45.0 | 30.0 | 10.0 | 75.0 | 15.0 |
| Medium ($20-$40) | 22 | 40.9 | 40.9 | 18.2 | 18.2 | 72.7 | 9.1 |
| High (>$40) | 16 | 37.5 | 31.3 | 31.3 | 18.8 | 68.8 | 12.5 |
| Drug Benefit | | | | | | | |
| No | 37 | 27.0 | 43.2 | 29.7 | 16.2 | 67.6 | 16.2 |
| Yes | 21 | 47.6 | 33.3 | 19.1 | 14.3 | 81.0 | 4.8 |
| Hospital Days Per 1,000 Medicare Enrollees | | | | | | | |
| Low (<1600) | 12 | 33.3 | 58.3 | 8.3 | 16.7 | 66.7 | 16.7 |
| Medium | 22 | 31.8 | 36.4 | 31.8 | 4.6 | 86.4 | 9.1 |
| High (>2100) | 24 | 37.5 | 33.3 | 29.2 | 25.0 | 62.5 | 12.5 |
| Hospital Days Per 1,000 Enrollees | | | | | | | |
| Low (<400) | 15 | 33.3 | 40.0 | 26.7 | 26.7 | 53.3 | 20.0 |
| Medium | 32 | 31.3 | 46.9 | 21.9 | 9.4 | 81.3 | 9.4 |
| High (>600) | 11 | 45.5 | 18.2 | 36.4 | 18.2 | 72.7 | 9.1 |

TABLE IV.3 (continued)

| | | Medicare Profit Margin | | | Total Profit Margin | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Loss (<-5%) | Break Even | Profit (>5%) | Loss (<-5%) | Break Even | Profit (>5%) |
| Number of TEFRA Plans in Market Area | | | | | | | |
| Missing | 2 | | 100.0 | | | 100.0 | |
| 1 | 13 | 53.9 | 38.5 | 7.7 | 23.1 | 69.2 | 7.7 |
| 2-3 | 21 | 28.6 | 33.3 | 38.1 | 19.1 | 57.1 | 23.8 |
| Greater than 3 | 22 | 31.8 | 40.9 | 27.3 | 9.1 | 86.4 | 4.6 |
| TEFRA Enrollment at End of Year | | | | | | | |
| Less than 3,000 | 19 | 31.6 | 31.6 | 36.8 | 31.6 | 47.4 | 21.1 |
| 3,000 to 3,000 | 25 | 24.0 | 56.0 | 20.0 | 8.0 | 84.0 | 8.0 |
| Greater than 10,000 | 14 | 57.1 | 21.4 | 21.4 | 7.1 | 85.7 | 7.1 |
| TEFRA Enrollment as Percent of Total Enrollment | | | | | | | |
| Less than 10% | 33 | 33.3 | 39.4 | 27.3 | 18.2 | 69.7 | 12.1 |
| 10% to 30% | 19 | 47.4 | 36.8 | 15.8 | 15.8 | 73.7 | 10.5 |
| Greater than 30% | 6 | | 50.0 | 50.0 | | 83.3 | 16.7 |
| Profit Status | | | | | | | |
| Non-profit | 32 | 56.3 | 34.4 | 9.4 | 9.4 | 84.4 | 6.3 |
| For-profit | 26 | 7.7 | 46.2 | 46.2 | 23.1 | 57.7 | 19.2 |
| Year Started Holding Risk Contract | | | | | | | |
| 1985 | 29 | 34.5 | 48.3 | 17.2 | 6.9 | 79.3 | 13.8 |
| 1986 | 23 | 34.8 | 39.1 | 26.1 | 26.1 | 65.2 | 8.7 |
| 1987-1988 | 6 | 33.3 | | 66.7 | 16.7 | 66.7 | 16.7 |
| Biased Selection | | | | | | | |
| Missing values | 3 | 33.3 | 66.7 | | 33.3 | 66.7 | |
| Favorable (<.8) | 31 | 32.3 | 45.2 | 22.6 | 12.9 | 80.7 | 6.5 |
| Neutral | 24 | 37.5 | 29.2 | 33.3 | 16.7 | 62.5 | 20.8 |

TABLE IV.3 (continued)

| | | Medicare Profit Margin | | | Total Profit Margin | | |
|---|---|---|---|---|---|---|---|
| | Number of Plans | Loss (<-5%) | Break Even | Profit (>5%) | Loss (<-5%) | Break Even | Profit (>5%) |
| Adjusted Mortality Ratio | | | | | | | |
| Missing values | 3 | 33.3 | 66.7 | | 33.3 | 66.7 | |
| Low (<.8) | 33 | 39.4 | 36.4 | 24.2 | 21.2 | 66.7 | 12.1 |
| High | 22 | 27.3 | 40.9 | 31.8 | 4.6 | 81.8 | 13.6 |
| 1988 AAPCC | | | | | | | |
| Missing values | 2 | | 100.0 | | | 100.0 | |
| Low (<$250/mo.) | 13 | 38.5 | 46.2 | 15.4 | 23.1 | 69.2 | 7.7 |
| Medium ($250-$290/mo.) | 26 | 38.5 | 38.5 | 23.0 | 11.5 | 76.9 | 11.5 |
| High (>$290/mo.) | 17 | 29.4 | 29.4 | 41.2 | 17.7 | 64.7 | 17.7 |
| Model Type | | | | | | | |
| Group | 14 | 57.1 | 21.4 | 21.4 | 21.4 | 64.3 | 14.3 |
| IPA | 32 | 18.8 | 50.0 | 31.3 | 15.6 | 75.0 | 9.4 |
| Staff | 12 | 50.0 | 33.3 | 16.7 | 8.3 | 75.0 | 16.7 |

likely to make a profit on Medicare and twice as likely to lose money as those not offering such a benefit, according to these estimates. Such plans were also less likely to earn a profit overall (using the 5 percent profit margin definition). For-profit firms were much more likely to be profitable than not-for-profits, both on their Medicare business and overall. Nearly half of the for-profit HMOs earned profits on their Medicare plan and only 8 percent incurred losses. The situation was essentially reversed for non-profit HMOs. The likelihood of profits also increased dramatically with the AAPCC--those in areas with AAPCCs over $290 per month were nearly twice as likely to earn profits on Medicare enrollees as were plans with premiums of $250-$290 and nearly three times as likely as plans with AAPCCs under $250.

Other findings were not so consistent with expectations. IPAs were more likely than other model types to earn profits on Medicare (but were less likely to be profitable overall). Most surprising was the finding that plans with under 1,600 hospital days per 1,000 Medicare enrollees were *less* likely to earn profits than plans with higher hospital use rates. HMOs with the lowest total hospital use rates were *more* profitable overall, however, as one would expect.

Other results were also puzzling. Plans with over 10,000 Medicare enrollees were less likely to earn profits and more likely to incur losses on Medicare than plans with under 3,000 enrollees, contrary to earlier results in this report which suggest that larger plans tend to be more successful. Also surprising was the finding that plans joining the Medicare risk program at the earliest point (1985) were less profitable on their Medicare business than those joining later.

### 2. Qualifications Concerning the Results

Those findings are clearly preliminary and require substantial additional investigation. The small sample size, poor quality of data, and imprecise model estimates on which the allocation algorithm is based suggest that much further work is necessary before it will be possible to make confident statements about the profitability of HMOs on their Medicare plans.

The quality of the data used in our estimation has been discussed in Section A. Over 20 HMOs were deleted from the sample due to missing or obviously erroneous data. Some of these deleted HMOs have large total enrollment and substantial Medicare components. If the HMOs that have been dropped from our sample are not systematically different from those that have been included, our estimates will be less precise but still unbiased. However, if these HMOs are somehow different (for example, HMOs that file inaccurate reports may be more poorly managed and more susceptible to losses), our estimates will be biased as well as. Without good data, no allocation methodology can accurately assess the financial performance of HMOs.

Even when plans provided complete data, the data were often of poor quality. For example, for many plans the Medicare enrollment reported in the NDRR data is substantially different from that reported in the OPHC Monthly Status Reports. We also have evidence that the NDRR data filed by HMOs with state governments differ substantially from that filed with HCFA. These discrepancies suggest there may be substantial problems with the quality of the data, which will obviously affect the validity of the results.

Another problem with our cost estimates is that the model we estimated is based on the average *total* cost; that is, we have implicitly assumed that the ratio of Medicare to non-Medicare average costs is the same for all types of costs: physician costs, inpatient costs, other medical costs, and administrative costs. By estimating average cost equations separately for the four separate cost categories, we may be able to allocate costs in a manner which more closely reflects the true allocation.

Finally, our calculation of Medicare-associated revenues may not be accurate. Although HCFA payments to the HMOs represent the bulk of the Medicare revenue, there are discrepancies among the different premium data that must be resolved. In many cases, the premium reported in the OPHC Monthly Status Report is larger than the approved amount in the ACR. Also, a better method for allocating the copayment revenue may be needed. Currently, copayments are allocated

in proportion to adjusted member months--i.e., the copayment amount assigned per Medicare member month is larger than the amount assigned to non-Medicare member months by the estimated cost ratio (f) for the plan, which averages about 3.8. Since copayments are likely to be more closely linked to the number of physician office visits than to average total cost, a better allocation scheme may be needed.

## D. FUTURE ANALYSES

Our preliminary results suggest that profitability is more volatile in the Medicare portion of HMOs operations than in their overall operation. That is to be expected, given the much smaller number of Medicare member months, the more limited experience that HMOs have had in the past with aged individuals, and the constraints imposed by the Medicare risk program. The results suggest, however, that a significant number of HMOs have very satisfactory financial experience under Medicare risk contracting.

The results presented probably overstate the volatility of profits that plans actually experience on their Medicare business, due to the problems cited in the previous section. Future analyses should consist of improving data quality, disaggregating cost levels, testing estimation results, and refining the allocation of revenues. To improve our analysis of profitability of HMOs, we must first improve the data used in our analysis. We have some evidence that the quality of NDRR and ACR data is improving, so analyses of data for 1989 may yield better results.

To obtain more stable results, and to observe changes over time, we will combine data for 1989 with the 1988 data. Data are also available for 1987 for approximately 59 plans, but a number of these plans lack data on my variables. Hence, we do not expect to be able to make much use of these data.

Once the data issues have been resolved, we can turn to the specification of models and the level of disaggregation. With a better set of data, our results may change depending on the model used. We plan to test various alternative model specifications, including use of total cost rather than

average cost as the dependent variable and development of separate Medicare cost estimates for each of the four cost categories.

We will also use some external data sources to examine the results. Cost reports have been obtained for a small number of HMOs with TEFRA cost contracts and will be used to examine the validity of our models by estimating the costs for Medicare and non-Medicare portions with our model and comparing these to the Medicare costs reported by the cost HMOs. This will provide only a weak test of our algorithm, since the cost allocation rules used in these cost reports may be no more accurate than our own estimates. Also, cost plans may behave differently from risk plans, and these differences in behavior may affect the costs associated with Medicare. Nonetheless, the comparisons may provide some useful checks on our models.

We expect that the most reliable estimates of cost per Medicare member month will be obtained by using the cost factors developed by HMOs in their ACRs to allocate total costs from the NDRR data. These cost factors are typically based on the HMOs actual experience, and therefore should provide a cost allocation that reflects the HMOs uniqueness. Hence, estimates for specific HMOs should be more reliable than those based on the econometric algorithm.

Finally, we will refine the method used to calculate the Medicare portion of total revenues. Unfortunately, detailed data on some types of revenues (interest earnings and copayments) is not available, so it will be necessary to develop and test various methods for allocating these revenues. Estimating average revenue equations is one possibility for allocating some revenue categories. High $R^2$ values will indicate that the algorithm for allocating these revenues is adequate. We will also calculate average risk factors for HMOs and multiply them by the published AAPCC rates to assess the accuracy of the Medicare revenues reported.

# V. RESULTS TO DATE FROM THE EVALUATION

As briefly mentioned in Chapter I, several analyses for the evaluation have already been completed. This chapter presents detailed summaries of the reports that have been prepared to date.

## A. FIRST YEAR REPORTS

### 1. Quality and Availability of HMO Data

The May 1989 report, "Availability of HMO/CMP Data on the Service Utilization and Cost of Medicare Members," by Carlton and Swearingen, addressed the current availability of the various types of HMO data required for the evaluation of the Medicare risk program. Based on information collected during site visits to 41 HMOs during Fall 1988, they found that obtaining useable individual level utilization and cost data from the HMOs would be problematic, even with minimal data requests. In addition, the many different formats in which the data are stored between plans and the quality of that data make it difficult and expensive to develop consistent data sets for research purposes. Data on ambulatory services are particularly poor, and even data on hospital use is suspect. Thus, comparisons across plans may be misleading, and limiting studies to only plans with data of high quality is likely to yield results that are not representative of the population of interest.

The report presents a more optimistic conclusion regarding the availability of aggregate data on financial performance and utilization. However, relatively few HMOs disaggregate costs into those accruing to their Medicare clients and those accruing to their commercial clients. As a result, assessment of plans' financial performance will require the development of reasonable algorithms for allocating costs between Medicare and commercial members, along the lines of that presented in the preceding chapter of this annual report.

### 2. Disenrollment Patterns

The 1989 report, "Disenrollment Experience in the TEFRA HMO/CMP Program, 1985 to 1988" will serve as the basis of a report to Congress on the same topic. The study reviewed and analyzed the patterns of disenrollment and some of the factors that may affect disenrollment. Additional analyses using data from the Medicare Competition Demonstration were conducted to determine whether disenrollment tended to be associated with dissatisfaction, and what types of dissatisfaction were most common among disenrollees.

Over 7 percent of beneficiaries disenrolled within three months of joining an HMO, 12 percent disenrolled within 6 months, and 20 percent disenrolled within 12 months. Beneficiaries who disenroll within three months of joining an HMO are likely to have joined under some misconception about HMO service delivery, benefits, or other aspects of the program and thus quickly disenroll when they discover their error. Earlier results (Brown, et al., 1986) from survey data on disenrollees from the Medicare Competition Demonstrations suggested that such misunderstanding was one of the most common reasons for disenrolling from a Medicare risk plan.

Analysis of disenrollment in the Medicare risk program also presented evidence that a considerable fraction of disenrollment is due to Medicare beneficiaries' switching to another HMO, which was consistent with findings from the Medicare Competition Demonstration Evaluation. About one-third of all disenrollees in areas with multiple plans joined another HMO upon disenrolling. However, while higher disenrollment rates among plans in areas with multiple Medicare risk plans support the idea that increased competition may be the reason for this increased disenrollment, the proportion of enrollees who leave a Medicare risk plan and return to the fee-for-service sector was also greater in areas with multiple plans than in areas with only one plan. This implies that dissatisfaction with HMO-style care may be higher in areas competing for enrollees.

1988. Another 17 were expending a minimum amount of effort to comply with HCFA regulations. Many managers indicated that they were adopting a "wait and see" attitude toward their continued participation in the program.

## B. SECOND YEAR REPORTS

Two reports were produced during the second year of the evaluation: the "First Annual Report of the TEFRA HMO/CMP Program" and "Biased Selection in the TEFRA HMO/CMP Program."

### 1. The First Annual Report

Bergeron, Brown, and Hill reported their findings on the first four years of operation of the Medicare risk program in the 1990 first annual report. Similar to the current report, the first annual report contained descriptive data on the Medicare risk program, an overview of the research design for the evaluation, and summaries of the reports completed to date. Analyses included an examination of the distribution of plans by enrollment levels, enrollment growth, and disenrollment to determine whether success in attracting and retaining enrollees varies with plan characteristics. The report described the overall composition of plans in the program by characteristics, benefits, and premiums as of January 1989 and how these distributions had changed since the inception of the Medicare risk program in 1985. The report also examined differences in characteristics, benefits, and premiums between plans that renew and do not renew their risk contracts.

Many of the findings from the first annual report were consistent with expectations for a young program. During the first years of the program, many HMOs joined the program, but it was dominated by plans that had a Medicare contract prior to TEFRA. Average plan size increased over the four year period, and enrollment became more concentrated in larger plans. Larger plans in the program were older, faced more competitors, charged lower premiums, offered more benefits and were located in areas with higher AAPCC rates.

### 3. Organizational and Operational Characteristics

The report "Organizational and Operational Characteristics of TEFRA HMOs and CMPs" summarized the information collected during site visits to 41 plans in the fall of 1988. The study examined enrollments, plan characteristics, plan financial structures, self-reported financial performance, and quality assurance programs.

The major findings from this study were new classifications of plans by characteristics expected to be associated with plan financial performance. Plans were characterized by whether physicians provided services to patients who are not HMO members, whether physicians are capitated, whether a fraction of payments owed to physicians are withheld, the degree of cohesion and interaction among the staff, whether the HMO owns the facilities in which the physicians practice, and the methods used to monitor and control utilization of services. Based on the strength of physician incentives and HMO control, group model HMOs tended to have the strongest mechanisms for controlling costs. Examination of hospital utilization rates suggested that capitation is the most important single factor in controlling utilization, but capitation combined with greater HMO-physician cohesiveness (through practicing as a group and limiting patients to only HMO members) led to the strongest degree of control.

Quality assurance plans were found to have changed greatly over the past three years. Early demonstration plans relied on working committees and a substantial fraction of plans had no formal structure for quality assurance, whereas the current Medicare risk plans are much more likely to have permanent staff and departments for quality assurance. Procedures for dealing with quality of care problems now tend to be formalized.

Despite more developed utilization controls and stronger quality assurance programs, there were a number of warning signals of serious problems facing the Medicare risk program. Half of the plans receiving site visits reported losing money in the Medicare risk program. Additionally, out of the 40 plans responding to the inquiry, only 12 were actively marketing their Medicare risk product as of Fall

### 2. Report on Biased Selection in the Medicare risk program

In September 1990, Hill and Brown completed the report, "Biased Selection In The TEFRA HMO/CMP Program." The report examined the issue of whether enrollees in the Medicare risk program are healthier and require less Medicare covered services than beneficiaries who do not join HMOs, even after accounting for differences on factors included in the AAPCC payment rate (age, sex, reason for entitlement, whether on welfare, whether institutionalized, county of residence). Enrollee-nonenrollee differences that may affect service use but are not fully captured by the AAPCC risk factors may include health status or preferences for obtaining health care.

**Major Objectives.** The major objective of the study was to assess the extent of biased selection in the Medicare risk program as measured by the incidence of Medicare risk plans with favorable, neutral, or adverse selection. A favorable selection of enrollees implies that average Medicare reimbursements for enrollees, had they remained in the fee-for-service sector, would have been less than the average reimbursements paid on behalf of nonenrollees with the same distribution across AAPCC risk factors. Conversely, an adverse selection of enrollees implies that average Medicare reimbursements for enrollees would have been greater than the reimbursements for nonenrollees with the same distribution across AAPCC risk factors. If HMOs experience substantial favorable selection, the cost of care to HCFA for HMO enrollees under the AAPCC payment method will be greater than the cost would have been to HCFA under fee-for-service care, despite the setting of payment rates at 95 percent of the AAPCC. Adverse selection, on the other hand, would result in savings to HCFA of greater than 5 percent. However, these savings may be short-lived, since plans may find it difficult to cut costs sufficiently to avoid financial losses, prompting contract nonrenewal.

Another objective of the study was to determine the relationship between the plan-specific estimates of biased selection and the characteristics of plans and their market areas. Of particular interest were the relationships between the degree of biased selection experienced and plan characteristics, such as model type, market penetration rates, and contract nonrenewal. Model type

Although aggregate growth in enrollment for the Medicare risk program was modest in 1988 and reflected the growth rate for the entire managed-care industry, we found considerable variation across types of plans in growth and disenrollment rates. For example, group model plans and plans with HCPP or GPPP prior Medicare contracting experience were the most likely to experience growth rates in excess of 20 percent. Older plans, plans with three or more competitors, and plans charging more than $50 premiums were associated with the highest disenrollment ratios.

Other changes in plan characteristics during the first four years of the program included a move toward chain-affiliation, and a shift in the distribution of enrollments across regions, with the midwest and east losing and the west gaining. Medicare risk plans generally increased premiums to beneficiaries, but some plans continued to charge enrollees nothing for the additional benefits covered beyond the basic Medicare benefits. In addition, copayments for basic services became more common over the first four years of the program.

The characteristics of the 37 plans that did not renew their Medicare risk contract for 1989 were found to differ from the characteristics of plans that continued in the program in several ways. For example, 81 percent of nonrenewing plans were IPA model plans, whereas IPA-model plans comprised only 46.3 percent of plans continuing in the program. Almost 90 percent of nonrenewing plans had no prior Medicare contracting experience. Yet, 75 percent of nonrenewing plans began Medicare contracting in 1986 or earlier, making these nonrenewing plans older (and more experienced) than what one would expect. Nonrenewing plans were also found to charge higher premiums than plans continuing in the Medicare risk program. Over two-thirds of nonrenewers charged premiums in excess of $30 per month while less than half of renewing plans charged premiums in this range. The effect of plan nonrenewals on total Medicare risk enrollment was not as large as the number of nonrenewing plans implied because nonrenewing plans tended to have few enrollees.

was of interest because IPAs are expected to draw a significant fraction of their enrollment from patients that they had seen on a fee-for-service basis. Since beneficiaries with strong ties to a particular physician are likely to be sicker on average than beneficiaries without such ties, IPAs are expected to have less favorable selection than other model types. Market penetration was of interest in the study because of the expectation that as market penetration rates rise, the set of individuals enrolled will tend to more closely resemble the beneficiary population. Thus, more neutral selection was expected among plans in market areas with high penetration rates. Plans that did not renew their risk contracts were expected to have experienced less favorable selection than other plans on average, given the obvious financial advantages of favorable selection.

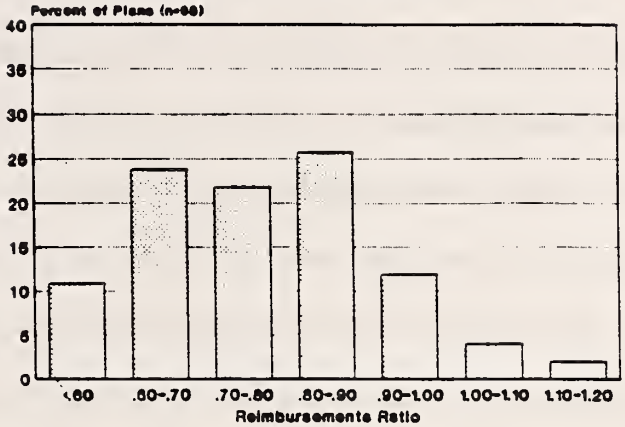
**Methodology.** For each of 98 health plans that had Medicare risk contracts during 1988 and had enrolled over 1,000 beneficiaries, average Medicare reimbursements during 1985 and 1986 for enrollees who joined a Medicare risk plan during 1987 or 1988 were compared to the average reimbursements for the same period for nonenrolled beneficiaries who reside in the same market areas. Nonenrollee means were adjusted to account for enrollee-nonenrollee differences in the distribution of individuals across the actuarial risk categories used in AAPCC payment rates. Enrollee observations were weighted to reflect the length of time the beneficiary was enrolled, in order to account for any biases in disenrollment. Comparisons were also made between enrollees and nonenrollees on a second measure, the proportion of individuals with hospital stays for high cost diagnoses during the 1985-1986 pre-enrollment period. These comparisons also controlled for differences on AAPCC factors.

**Overall Findings.** As Figure V.1 shows, both measures provided evidence that selection was favorable to HMOs overall and that the majority of plans experienced favorable selection. We found no statistical evidence that any of the 98 plans examined experienced adverse selection. Prior reimbursements, adjusted for enrollee-nonenrollee differences in AAPCC factors and weighted to reflect length of enrollment, were 23 percent lower for enrollees than for nonenrollees. Although

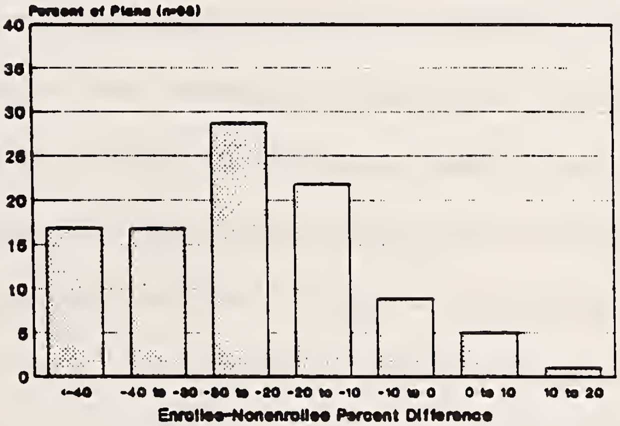
FIGURE V.1

## Distribution of Plans for Three Measures of Biased Selection

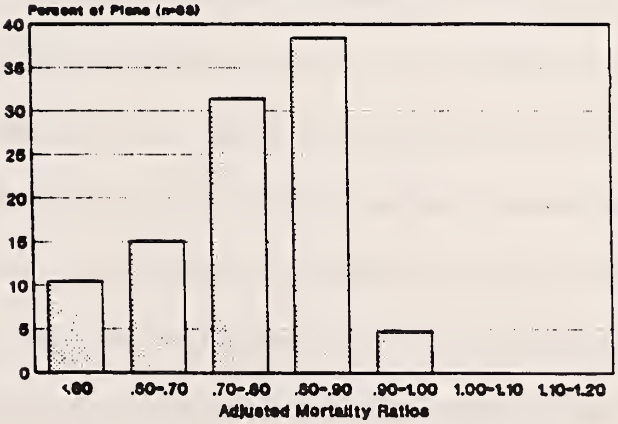
RATIO OF ENROLLEE TO NONENROLLEE
PRIOR REIMBURSEMENTS



ENROLLEE-NONENROLLEE DIFFERENCE IN
HIGH COST HOSPITALIZATIONS



RATIO OF ENROLLEE MORTALITY TO ADJUSTED
NONENROLLEE MORTALITY



there was some dispersion in the reimbursement ratios, most plans had ratios below .80. The enrollee-nonenrollee difference was statistically significant for nearly two-thirds of the plans, indicating favorable selection in each case.

The second biased selection measure was designed to combat the problem that the prior reimbursement measure may overestimate the extent of favorable selection because of "regression toward the mean," that is, in general a group of beneficiaries defined by their below average reimbursements in one year will tend to have average reimbursements in future years that are much closer to the overall mean. This second measure was the adjusted enrollee-nonenrollee percentage difference in the proportion of cases with hospital stays in the pre-enrollment period for diagnoses associated with high future costs. The results show that enrollees were found to be about 25 percent less likely than nonenrollees to have had high-cost diagnoses. Also, over half of the plans exhibited statistically significant differences, always indicating favorable selection. The distribution of estimates was very similar to that of the prior reimbursement ratio, as Figure V.1 illustrates.

To further test the robustness of our findings we compared them to another estimate of biased selection. Riley and Rabey (1989) conducted an analysis of biased selection by comparing the proportion of enrollees who died to the proportion that would be expected to die, given the age and sex distribution, if the enrollees were a randomly selected group of Medicare beneficiaries. The ratio of actual to expected mortality rates, referred to as the standardized mortality rate (SMR), does not measure expected relative costs for all enrollees, but does capture enrollee-nonenrollees differences in the proportion of beneficiaries falling into this extremely high-cost group. Furthermore, mortality rates do not suffer from the principal problem with pre-enrollment measures, which is that such pre-existing differences may overstate the differences between the groups that would have occurred had beneficiaries not joined the HMO. Riley and Rabey found that on average, enrollees experience 25 percent fewer deaths compared with the Medicare beneficiaries residing in the same areas. Although no statistical test of significance were performed by Riley and Rabey, all the ratios used in the

comparisons were less than one (see Figure V.1), most by a substantial margin, indicating either neutral or favorable selection for all the plans. Across all three measures, the results were strikingly similar. Overall, estimates show that plans experienced favorable selection of 23 to 25 percent, clearly favorable selection was experienced by half to two-thirds of the plans, and no statistical evidence was found that any plan experienced adverse selection. For specific plans, comparisons across the different measures showed a fairly strong correlation between measures, but suggested that in some cases either the source of favorable selection (fewer deaths, fewer chronic cases, or lower prior reimbursements) differed for the same plan or that the measures may not be especially reliable indicators of the degree of biased selection for a particular plan because of modest sample sizes per plan. Nonetheless, the overall similarity of the degree of bias and the distribution of plans across the three measures is strong evidence that biased selection is favorable for most Medicare risk plans.

**Results By Plan And Market Area Characteristics.** Across all measures of biased selection, staff model plans experienced more favorable selection than group practice models or IPAs. As Figure V.2 shows for the reimbursement ratio measure, group model plans had more favorable selection than IPAs, but less favorable selection than staff model plans. These findings are consistent with our expectations, since some but not all group model HMOs draw a significant number of their enrollees from the fee-for-service patients of the physician group, contributing to less favorable selection for the HMO. However, regression models showed that, once other differences between the two types of plans are taken into account, group practice plans and IPAs experience about the same degree of favorable selection.

The relationship between market penetration rates and biased selection was less straightforward. As Figure V.3 illustrates, among plans exhibiting very favorable selection (reimbursement ratio of .80 or less) a greater proportion were in market areas with penetration rates over 20 percent than in areas with less HMO penetration. However, plans with ratios indicating the least favorable selection (greater than 1.0) also tended to be in market areas with high penetration rates. Regression analyses

FIGURE V.2

## Distribution of Plans by the Ratio of Enrollee to Nonenrollee Prior Reimbursements, by Model Type

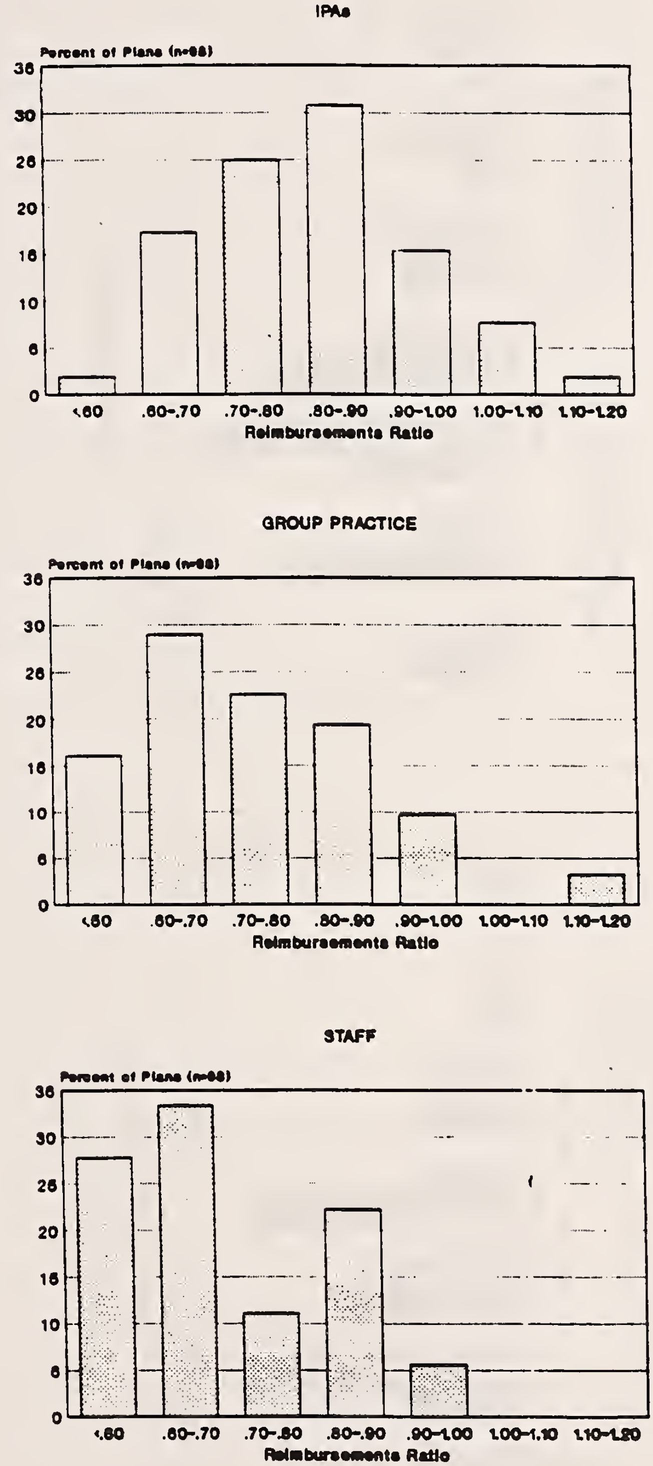
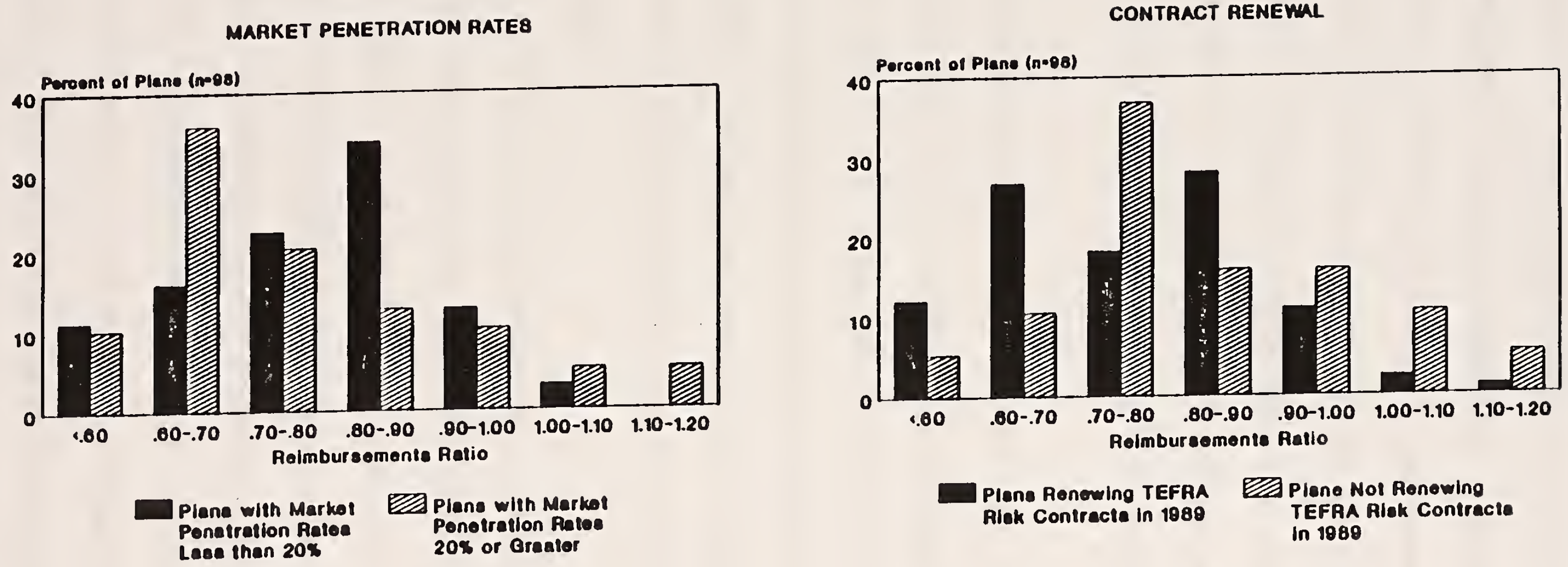


FIGURE V.3

Ratio of Enrollee to Nonenrollee Prior Reimbursements, by Market Penetration Rates and Contract Renewal


MARKET PENETRATION RATES

CONTRACT RENEWAL

suggested that this anomalous pattern could be explained by factors such as plan experience or age. Older or more experienced plans may still be able to attract a more favorable enrollment in an area where younger, inexperienced plans attract less healthy beneficiaries. For instance, HMOs with more experience in the Medicare market may be better able to avoid the adverse selection normally associated with higher market penetration, due to the greater visibility these early HMOs are likely to have among senior citizen groups and other groups of beneficiaries that are likely to be good risks on average. Newer entrants that have not established relationships with such groups, or were not the first HMO to do so in the area, may find it more difficult to recruit from these sources of favorable risks.

Figure V.3 also shows that nonrenewing plans experienced less favorable selection than renewing plans. Plans that did not renew their risk contracts were about twice as likely as renewing plans to have reimbursement ratios greater than .90. This finding was reinforced by the results from a logit model indicating that the degree of biased selection had a significant effect on the probability that a plan would not renew its contract. Controlling for other factors, a 10 point difference in the adjusted enrollee-nonenrollee reimbursements ratio leads to a 6 percent increase in the likelihood that a plan will not renew its contract.

**Implications.** The results of our analysis suggest that the cost to Medicare for enrollees, had they remained in the fee-for-service sector, would have been considerably less than the cost incurred for other beneficiaries who are similar on the characteristics used in the AAPCC payment methodology. Thus, if the AAPCC accurately estimates average reimbursements for beneficiaries in fee-for-service, the current payment methodology results in capitation payments to Medicare risk plans that exceed the Medicare costs that would have been incurred on behalf of enrollees had they remained in the fee-for-service sector. Limiting payments to 95 percent of the AAPCC does not fully offset this effect of favorable selection. Furthermore, the persistence of favorable selection in market areas with high penetration rates means that the AAPCC will continue to overstate what the

Medicare costs of enrollees would have been in the fee-for-service sector, even as enrollment grows to substantial levels.

Despite this apparent increase in costs to Medicare, however, there are several reasons why Medicare risk HMOs may not be prospering. First, the low deductibles and copayments and extensive coverage typical of Medicare risk HMOs relative to FFS Medicare and medigap coverage may induce higher use of services among enrollees, compared to what their use would have been in the FFS sector. Thus, while the costs to Medicare of providing care to enrollees in the FFS sector would have been less than the AAPCC payments made, the cost to HMOs for these enrollees may have exceeded the revenues HMOs received from capitation and premiums.

Second, Medicare risk plans incur administrative and marketing costs not incurred by FFS providers. These include the costs of recruiting enrollees, the HMOs' costs of contracting with any additional providers needed to service Medicare enrollees, the costs of conducting PRO reviews for quality assurance, and the costs of preparing annually for HCFA their adjusted community rate (ACR), which is the basis for determining the premium than an HMO is allowed to charge enrolled beneficiaries.

Third, Medicare risk plans face the risk of mid-contract decreases in AAPCC payments under the Gramm-Rudman Act, but are not allowed to offset these losses by raising beneficiary premiums in mid-year. Furthermore, reinterpretations by HCFA concerning the benefits that must be offered by the HMOs under their basic Medicare plan have also occurred unexpectedly. These unanticipated changes in revenues and costs decrease profits and increase the plan's perceived risk of contracting under the Medicare risk program.

Fourth, contracting to provide care for the elderly at a prospectively-set fixed rate is riskier than contracting for the younger enrollees in an HMO's commercial market because the proportion of cases with extreme costs is greater with Medicare enrollees and because there are fewer Medicare enrollees over which to spread these risks. However, an HMO is not permitted to charge rates that

would lead to higher expected profit rates for the HMO's Medicare plan than for its commercial business (to compensate for the greater risk).

Fifth, Medicare pays lower rates for medical procedures and hospital stays than commercial clients pay, which is reflected in a lower AAPCC payment. However, the adjustments to the commercial rates performed in the ACR calculations only account for differences between Medicare and non-Medicare enrollees on expected levels of utilization and complexity of cases. Furthermore, in order to compete with medigap policies (which do not require limiting the beneficiary's choice of physicians, hospitals or specialists) a number of HMOs charge a premium below the maximum allowed by their ACR calculations.

Sixth, the full costs associated with care for Medicare beneficiaries is not reflected in the AAPCC rates, yet HMOs must bear the full costs. For example, those with Medigap policies will tend to use more reimbursable services, other things being equal, than those without such coverage, because there is much less out-of-pocket cost under Medigap. Similarly, all HMO members will face little or no deductibles or copays. Yet the AAPCC is calculated on all beneficiaries, 30 percent of whom do not have Medigap coverage. Thus, the higher costs of covered Medicare benefits arising from limiting out-of-pocket costs are not fully reflected in the AAPCC rates. The AAPCC rates also do not reflect the additional costs paid by beneficiaries on the 30 percent of claims in which physicians do not accept assignment.

The slow growth in enrollment in the Medicare risk program and the decline in the number of plans participating despite the apparently favorable selection may not be such a paradox in light of the above factors.

# VI. ACTIVITIES FOR THE NEXT YEAR OF THE EVALUATION

Extensive data collection, analysis file creation and report preparation must be completed during the third year of the evaluation. Telephone interviews will be completed with approximately 6,300 Medicare risk enrollees and an equal number of nonenrolled beneficiaries residing in the same market areas. We will also abstract data from the hospital medical records of 800 HMO inpatients and 800 nonenrolled beneficiaries. With the completion of the survey, analysis files can be constructed for much of the remaining analysis. Upon the completion of medical record abstraction, the quality of care analysis can proceed. In addition, the analysis of plan financial performance for 1988 will be completed and extended to 1989, and two case studies will be conducted. The data collection and analytic activities to be performed over the third year are described below.

## A. DATA COLLECTION AND PROCESSING

During the third year of the evaluation, most efforts were devoted to data collection and analysis file creation. The key data collection tasks that were scheduled to be performed included:

- Complete the telephone survey of Medicare beneficiaries
- Abstract medical records
- Collect market area, beneficiary history and claims data from HCFA sources and files (MADRS, MEDPAR, GHPO, HIPO, ARF, OPHC)
- Collect use and cost data from a small number of HMOs
- Collect information from rural HMOs and HMOs that are not doing well financially under the Medicare risk program

### 1. The Beneficiary Survey

The computer-assisted telephone survey of beneficiaries began in mid-March 1990 and was completed in September 1990. A wide variety of information was collected from about 6,300 enrollees, spread across the 82 HMOs with 1,000 or more enrollees, and a matching number of

nonenrollees in the same counties. The database to be developed from the survey information will support analyses of the impact of the Medicare risk program on the use and cost of services, access to care, and beneficiary satisfaction, and will also be used to examine disenrollment and consumer choice.

### 2. Medical Record Abstraction

In September 1990, abstraction from hospital medical records began. Nurse abstractors, hired and trained by MPR, used specifically-designed instruments to abstract detailed information on both process and outcome measures for samples of 400 enrollees and 400 nonenrollees hospitalized in 1989 for cerebrovascular accidents (strokes) and equal sized samples of enrollees and nonenrollees undergoing surgery for colon cancer during 1989. Abstraction activities were nearly completed by the end of the third year of the evaluation (February 1991). Abstracted data, which will be drawn from over 150 hospitals, will be used to evaluate whether enrollees and nonenrollees receive equivalent care while hospitalized for colon cancer or cerebrovascular accidents.

### 3. Collection of Data from Sources at HCFA

Many analyses require the use of data maintained at HCFA. Data on reimbursements, diagnoses and procedures for hospital stays, deaths of sample members, and enrollment and disenrollment information are some of the data elements maintained by HCFA that are needed for the evaluation. The analyses of impacts of the Medicare risk program on the use and costs of services and on the quality of care will use these data, as will analyses of disenrollment, and consumer choice. The activities to be conducted include requesting data from the appropriate office; checking, cleaning, and matching or merging data sets to the database; and constructing analysis files according to the needs of each component of the analysis.

### 4. Collect Use and Cost Data from a Limited Set of HMOs

Use and cost data are needed from plans to assess the extent of possible nonresponse bias in estimates of HMO effects on utilization. Twenty HMOs will be identified and their hospital use and cost data will be solicited. Of these 20 plans, we expect to actually receive data from 10 plans by mid-1991.

### 5. Collect Information from Rural HMOs and HMOs that are Commercially Successful but are Losing Money in the Medicare Risk Program

Two case studies will be conducted in early 1991. The case study of rural HMOs requires information from HMOs that currently operate in rural areas but do not have Medicare risk contracts covering these areas in order to determine what needs to be done to convince such HMOs to participate in the risk program, or if they have risk contracts for urban areas, to extend their Medicare plan to the rural areas included in their commercial market area. Data collection for this task is likely to be conducted through telephone interviews. The case study of unsuccessful plans or plans that are losing money in the Medicare risk program will attempt to pinpoint the causes. Of particular interest will be HMOs that have solid financial performance on their commercial business but are unable to make a profit on their Medicare plan. Telephone interviews, use and cost data, and operational and organizational data will be collected from a group of selected plans that meet these criteria.

## B. ANALYSES AND REPORTS

During the final year of the evaluation, eleven reports will be prepared. The case study of rural HMOs will suggest ways in which HCFA could facilitate the extension of Medicare HMOs to rural areas. The case study of unsuccessful Medicare risk plans will attempt to identify the deficiencies in the Medicare risk program and in plan operations and management that lead to poor financial performance under Medicare risk contracting, despite the plan's proven ability to earn profits on their non-Medicare business. The report on beneficiary satisfaction will document beneficiary satisfaction

in HMO and fee-for-service settings, and examine variation in satisfaction among beneficiaries who exhibit different characteristics and who are enrolled in different types of HMOs. Two reports will determine the effects of HMO penetration rates on fee-for-service reimbursements and Medicare supplemental policies. A report on beneficiary choice will identify the types of beneficiaries who are most likely to enroll, the plan features that are most attractive to beneficiaries, and the marketing strategies that are most successful in reaching beneficiaries and influencing their decision to join. The third annual report will update the status of the program, examine the changes that occurred in the Medicare risk program during 1990, and analyze the financial performance of Medicare risk plans in 1989. The report on financial performance will investigate whether certain types of plans are susceptible to poor financial performance and how financial performance changes over time. Another report will estimate the impacts of the Medicare risk program on use and costs of services. The report on quality of care will address how the quality of inpatient care provided by the HMOs differs from that provided to beneficiaries under fee-for-service reimbursement. The summary final report will synthesize the results from the entire evaluation in a brief, nontechnical format for wide distribution.

## C. KEY MILESTONES

Listed below are the reports that will be completed from during the final year of the evaluation and the scheduled delivery date of the draft version. Final reports are due one month after receipt of written comments from HCFA.

| Deliverable | Completion Date |
|---|---|
| Draft Case Study Report on Rural HMOs | April 1991 |
| Draft Case Study of Unsuccessful Medicare risk plans | April 1991 |
| Draft Report on Quality of Care: Satisfaction and Access | June 1991 |

| Deliverable | Completion Date |
|---|---|
| Draft Report on the Effects of HMO Penetration Competitive Effects on Insurers | July 1991 |
| Draft Report of Competitive Effects on FFS Reimbursements | July 1991 |
| Draft Third Annual Evaluation Report | July 1991 |
| Draft Report on Beneficiary Choice (Includes Service Use by Disenrollees) | July 1991 |
| Draft Report on Financial Performance | August 1991 |
| Draft Report on Use and Cost Impacts | October 1991 |
| Draft Report on Quality of Care: Tracer Conditions | November 1991 |
| Draft Evaluation Summary Final Report | December 1991 |

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# APPENDIX A

# NONRENEWING PLAN PROTOCOL

## ORS LEADING TO NONRENEWAL

to renew the risk contract?

nost important?

nvert to a cost contract or HCPP?

or HCPP contract?

## R TEFRA RISK CONTRACTING

ing a risk contract?

those objectives?

ce compare to your projections?

npare to your projections?

ctions of enrollment, utilization, and administrative

## OF THE LOCAL MARKET

th you in the Medicare market? Who are they?

mance?

licies are most prominent?

are to what your plan offered?

are favorable compared to local hospital DRG

mal risk arrangements?

continue their Medicare contracts?

nce and yours?

## MENDATIONS

one by HCFA to avoid nonrenewals?

dicare risk contracting?

another Medicare risk contract?

## I. SUMMARY OF FACTORS LEADING TO NONRENEWAL

1. What factors led to the decision not to renew the risk contract?

   Which ones would you say were the most important?

   What factors led to the decision to convert to a cost contract or HCPP?

   Did you consider converting to a cost or HCPP contract?

   Why didn't you consider it/convert?

## II. DECISION TO ENTER TEFRA RISK CONTRACTING

2. What were your main reasons for entering a risk contract?

   Does the cost/HCPP contract still meet those objectives?

3. How did your actual utilization experience compare to your projections?

   How did your enrollment experience compare to your projections?

   What served as the basis for your projections of enrollment, utilization, and administrative costs?

## III. CHARACTERISTICS OF THE LOCAL MARKET

4. Are there HMOs that directly compete with you in the Medicare market? Who are they?

   How do you perceive their financial performance?

5. What Medicare supplemental insurance policies are most prominent?

   How do their premiums and benefits compare to what your plan offered?

6. Can HMOs negotiate hospital rates that are favorable compared to local hospital DRG payment levels?

## IV. CHARACTERISTICS OF THE MEDICARE PRODUCT

7. How were benefits and premium levels determined?

8. Did market competition pressure you into a premium that wouldn't cover the costs of the benefits?

9. Did ACR regulations pose any constraint on the premium you wished to charge?

10. Did you have trouble attracting enrollees?

    Did you have a specific Medicare enrollment target in mind?

11. Were utilization control systems introduced or altered in preparation for Medicare risk enrollees?

## V. MEDICARE RISK CONTRACT EXPERIENCE

12. Generally, has the financial experience of the Medicare risk contract been favorable or unfavorable over the years?

13. How was this determined, given the difficulty of tracking Medicare and non-Medicare member costs?

14. Do you think that the beneficiaries who enrolled in the HMO were notably different on average from those that didn't enroll, in terms of their health care needs or their propensity to seek medical care?

15. On what do you base this assessment?

16. Did affiliated physicians or hospitals express strong support or opposition to the Medicare risk contract?

    If appropriate:

    Did affiliated physicians or hospitals express strong support or opposition to the Medicare cost/HCPP contract?

17. Have problems surfaced regarding payment rates or internal risk arrangements?

If appropriate:

18. Why do you think other HMOs in your area are able to continue their Medicare contracts?

19. What accounts for the difference between their experience and yours?

## VI. CONCLUSIONS AND RECOMMENDATIONS

20. Within the current TEFRA program, what could be done by HCFA to avoid nonrenewals?

21. Could the HMO ever again become interested in Medicare risk contracting?

22. Under what circumstances would your plan consider another Medicare risk contract?

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